

3 1761 11765208 1











# THE YUKON ECONOMY ITS POTENTIAL FOR GROWTH AND CONTINUITY

VOLUME VII      REFERENCE STUDY ON TRANSPORTATION

A Report on the Transportation Potential  
of the Yukon Territory

by  
D. Wm. Carr & Associates Ltd.  
International Development Consultants Ltd.

Background study for the Yukon Development  
Ltd. as part of the Yukon Development Program  
for the Department of Northern Development  
Development of the Yukon Territory

While authorizing the publication of this report, the  
Yukon Development Ltd. has been advised that the  
report is not to be used for any other purpose  
all the information contained herein is for the use of the  
Yukon Development Ltd.

D. Wm. Carr & Associates Ltd.

Ottawa

July, 1968

Digitized by the Internet Archive  
in 2022 with funding from  
University of Toronto

<https://archive.org/details/31761117652081>



THE YUKON ECONOMY  
ITS POTENTIAL FOR GROWTH AND CONTINUITY

VOLUME VII REFERENCE STUDY ON TRANSPORTATION

A Report on the Transportation Services  
of the Yukon Territory

by

J. I. Guest and T. D. Heaver  
Intrcontinental Resource Consultants Ltd.  
Vancouver

Background study prepared for D. Wm. Carr & Associates Ltd. as part of the Yukon Economic Studies undertaken for the Department of Indian Affairs and Northern Development and the Government of Yukon Territory.

---

While authorizing the publication of this study, which has been prepared at their request, D. Wm. Carr & Associates Ltd. do not necessarily accept responsibility for all the statements or opinions that may be found therein.

Ottawa  
July, 1968





## TABLE OF CONTENTS

|   | Page    |
|---|---------|
| INTRODUCTION  |         |
| SECTION 1. PHYSICAL AND ECONOMIC ENVIRONMENT FOR TRANSPORTATION | 1 - 6   |
| SECTION 2. THE EXISTING TRANSPORTATION SERVICES                 | 7 - 61  |
| Introduction  | 7       |
| A. Transportation Facilities                                    | 8       |
| (i) White Pass and Yukon Route                                  | 8       |
| (ii) Highway Transportation                                     | 12      |
| a) Roads  | 12      |
| b) Trucking   | 17      |
| (iii) Air Transport   | 19      |
| a) Aviation Companies   | 20      |
| b) Airports   | 20      |
| B. Commodity Movements and Selected Passenger Statistics        | 20 - 44 |
| (i) White Pass and Yukon Railway                                | 23      |
| (ii) Highway Transportation                                     | 35      |
| (iii) Air Transport   | 38      |
| C. Transportation Rates, Service and Competition                | 43      |
| (i) Rate levels   | 45      |
| (ii) Service levels   | 52      |
| (iii) Competition   | 57      |
| SECTION 3. FRAMEWORK FOR TRANSPORTATION DEVELOPMENT             | 62 - 80 |
| A. Government Policy  | 62      |
| 1. Regulatory Policies  | 62      |
| (i) White Pass and Yukon Railway                                | 62      |
| (ii) Trucking   | 63      |
| (iii) Aviation  | 64      |
| 2. Investment Policy  | 66      |
| (i) Road Policy   | 67      |
| (ii) Airport Policy   | 71      |
| B. Previous Reports   | 73      |
| C. Factors in the Evaluation of Transportation Investments      | 78      |





|   | Page    |
|---|---------|
| Section 4. RECOMMENDATIONS                                | 81 - 83 |
| (i) Recommendations for further study                     | 81      |
| (ii) Recommendations for Government policy considerations | 82      |





# TABLES

| TABLE |  | PAGE |
|-------|--|------|
| 1     | Taxable Returns by Province and Occupation<br>1965 Taxation Year   | 5    |
| 2     | Freight and Express Movements in and out of<br>the Yukon Territory, 1967                                       | 8    |
| 3     | Minimum Desirable Road Standards   | 15   |
| 4     | Road Mileage by Type in the Yukon 1967   | 16   |
| 5     | Tote Road Assistance Programme<br>Annual Expenditures 1961-2 - 1966-7  | 16   |
| 6     | Estimated Winter Road Mileage 1960-1967  | 18   |
| 7     | Number of Aerodromes by Type of Operator<br>North West Canada, 1967  | 21   |
| 8     | Commodity Movements into and out of the<br>Yukon by Mode, 1964   | 24   |
| 9     | White Pass and Yukon Railway: Freight Traffic<br>North and Southbound, 1962-67                                 | 25   |
| 10    | Northbound General Merchandise to Selected<br>Destinations via the White Pass and Yukon Route -<br>1965 - 1967 | 27   |
| 11    | Volume of Annual Movements of Selected Commodities<br>on the White Pass and Yukon Railway, 1956-1966           | 28   |
| 12    | Some Class II and III Railways Carrying Mineral<br>Products (5 Year Average - 1962-1966)                       | 29   |
| 13    | Percentage of Empty Freight Car Miles, All<br>Canadian Railways and Selected "Mineral" Lines,<br>1962-66       | 31   |
| 14    | Analysis of Seasonality White Pass & Yukon Railway<br>and Canadian Class I & II Railways, 1961-67              | 32   |
| 15    | Distribution of Shipments According to Revenue<br>Distribution of Shipments According to Weight<br>1961-66     | 33   |
| 16    | Distribution of Number of Shipments According to Size<br>White Pass and Yukon Railway, June 1966, June, 1967   | 34   |



## TABLE

## PAGE

|     |   |         |
|-----|---|---------|
| 17  | Destination of Northbound General Freight Trips, 1964   | 34      |
| 18  | Analysis of Seasonality White Pass & Yukon Company Highway Division, 1962-67  | 37      |
| 19  | Percentage Distribution of Shipments by Weight to Whitehorse, Y.T., 1967 Canadian Freightways Ltd.                                    | 37      |
| 20  | Origin of Air Freight into the Yukon 1963-1966  | 39      |
| 21  | Destination of Packages from Yukon to Elsewhere Combined Total for January 1 - 7, March 5 - 11, June 18 - 24, 1967                    | 39      |
| 22  | Division between Express and Freight Cargo, From Edmonton and Vancouver to the Yukon, 1963-1966                                       | 40      |
| 23  | Air Cargo Commodities to Yukon ex Vancouver for Four Selected Weeks, 1967   | 40      |
| 24  | Monthly Totals of Different Types of Cargo on Board C.P.A. Plane, Flight 21, Bound for Whitehorse, Departing from Vancouver, for 1966 | 41      |
| 25  | Weekly Distribution of Freight Cargo Carried in Selected Weeks, 1967 from Vancouver to the Yukon                                      | 42      |
| 26  | Average Annual Percentage Increase in Aircraft Movements 1962-1966  | 44      |
| 27  | Comparison of Freight Rates for the Three Transportation Routes into the Yukon (per cwt.) 1967  | 46 - 48 |
| 28  | Revenue per ton/mile Ranges for the Three Transportation Streams from Vancouver into the Yukon, 1967                                  | 50      |
| 29A | Average Revenue per ton/mile, All Canadian Railways By Rate Categories, 1962-65   | 51      |
| 29B | White Pass and Yukon Railway Revenue per ton/mile from Selected Movements, 1967   | 51      |
| 30  | White Pass & Yukon Railway Freight Revenue, 1962-67   | 53      |
| 31  | Time in Transit by Mode, Vancouver to Yukon Points, 1967  | 35      |





# APPENDICES

| TABLE |  | PAGE |
|-------|--|------|
| 1     | 1-1 A. Motor Vehicle Licenses - Public Service Vehicle Operators in the Yukon Territory from April 1, 1967 to February 1968                          | 84   |
|       | 1-2 B. Motor Vehicle Licenses - Restricted Public Service Vehicle Operators from April 1, 1967 to February, 1968                                     | 88   |
| 2     | 2-1 Commercial Air Services Provided at the major Northwest Canadian Points by Types of Service, September, 1967                                     | 90   |
|       | 2-2 Commercial Air Services Provided in Northwestern Canada by Company, September, 1967  | 92   |
|       | 2-3 Classification of Service  | 98   |
| 3     | 3-1 Yukon Territory - Aircraft Movement Statistics at Airports with and without Air Traffic Control Towers by Type of Operation, 1962-1966           | 100  |
|       | 3-2 Northern British Columbia - Aircraft Movement Statistics at Airports with and without Air Traffic Control Towers by Type of Operation, 1962-1966 | 101  |
|       | 3-3 Northwest Territories - Aircraft Movement Statistics at Airports with and without Air Traffic Control Towers by Type of Operation 1962-1966      | 102  |
|       | 3-4 Yukon Territory - Itinerant Movements by Type of Power Plant, 1962-1966  | 103  |
|       | 3-5 Northern British Columbia - Itinerant Movements by Type of Power Plant, 1962-1966  | 104  |
|       | 3-6 Northwest Territories - Itinerant Movements by Type of Power Plant, 1962-1966  | 105  |
| 4     | 4-1 Domestic Passenger Origin and Destination Statistics from selected airports 1962-1966 Annual Totals  | 106  |
|       | 4-2 Passenger Origin and Destination Statistics All Canadian Carriage Only, 1965, 1966   | 107  |
|       | 4-3 Whitehorse: C.P.A. Boarding and Deplaning Passengers, 1964, 1966 and January - October, 1967   | 109  |





## TABLE

## PAGE

|     |  |     |
|-----|--|-----|
| 4-4 | Watson Lake: C.P.A. Boarding and Deplaning Passenger Statistics, 1964, 1966 and January - October, 1967  | 110 |
| 4-5 | Type of Passengers: Purpose of Trip for on Board Traffic North of Ft. St. John   | 111 |
| 4-6 | Origins and Destinations: Passenger Distributions, by Percentage, for Yukon Cities for 1964, 1965, 1966  | 112 |
| 5   | Regulations Governing the Granting, Assignment or Transfer of Public Service Vehicle Licences  | 113 |
| 6   | 6-1 Capital Expenditure on Roads, Bridges and Public Works by the Yukon Territorial Government, 1962-67  | 119 |
|     | 6-2 Capital Expenditure on Roads and Bridges 100% Recoverable from the Federal Government under the Engineering Services Agreement, 1963-1967        | 120 |
|     | 6-3 Reimbursement of Expenditure Incurred by the Yukon Territory, 31st March 1962 - 31st March 1967  | 120 |
|     | 6-4 Operations and Maintenance Expenditure on Roads, Bridges and Public Works by the Yukon Territorial Government, 31st March 1962 - 31st March 1967 | 121 |
|     | 6-5 Federal Expenditure on Roads and Bridges in Northern Canada, 1962-1967   | 122 |
|     | 6-6 Federal Expenditure on Airport Runways and Associated Facilities, 1962-1967  | 122 |
|     | 6-7 Federal Expenditure on Development Roads and Bridges in the Yukon Territory, 1962-1967   | 123 |
|     | 6-8 Federal Expenditure on Development Roads and Bridges in the Northwest Territories, 1962-1967   | 124 |
| 7   | The Role of Helicopters in the Yukon and Northwest Canada  | 125 |
| 8   | Capital Investment and Employment in Transportation in the Yukon Territory   | 127 |
| 9   | Hovercraft in the North  | 131 |

Footnotes



# A REPORT ON THE TRANSPORTATION SERVICES OF THE YUKON TERRITORY

by

J.I. Guest and T.D. Heaver

## INTRODUCTION

The purpose of this Report is to describe the transportation services of the Yukon Territory. This description may indicate some improvements which could be achieved in the transportation system even if radical changes do not occur in the regional economy. It should also provide a basis from which alternative investments in transportation projects in the Yukon can be appraised in the light of economic developments which are being forecast by other studies currently being completed.

To achieve this goal the Report is presented in three sections. First, the most significant physical and economic features of the region are described. No transportation system can be viewed apart from the environment which it serves and in which it operates. The existing transportation facilities are described in the second section; the transportation infrastructure, costs, completion and commodity movements are described. The third section deals with the framework for transportation development; the existing institutional pattern which influences transportation investment is described, previous reports are reviewed and the factors to be considered in the appraisal of alternative transportation projects are set out.





## SECTION 1

### THE PHYSICAL & ECONOMIC ENVIRONMENT FOR TRANSPORTATION

The Yukon Territory has an area of 207,000 square miles \* stretching from latitude 60° North to the Arctic Ocean. This amounts to 5.8% of Canada's land mass yet the population of the Yukon, 14,382 in 1966, was only .08% of Canada's total population. The reasons for this disparity are primarily the climate and the location of the region.

The geology and topography of the Yukon are favourable to settlement. Apart from the Coast and St. Elias mountains the Yukon has few rugged mountains, plateaux occupying most of the area. The plateaux are covered with a thick mantle of soil and sediment which were not swept away by the ice sheet, as in most of the Canadian north.<sup>1</sup> The sedimentaries have been the source of placer gold, so important in the Yukon's early development.

The severity and length of the Yukon winter limits agriculture and causes significant seasonality in many economic activities. For seven months, the majority of the Yukon has an average monthly temperature at or below freezing and it is normally only from June to August that precipitation falls in the form of rain. However, while winter temperatures may fall to less than minus 75°F, the severity of the coldest months is little different in Whitehorse from that in Winnipeg and Saskatoon. In the short summer the temperatures may rise to 90°F.

The relative mildness of Whitehorse, considering its latitude, is accounted for by its proximity to the Pacific Ocean. However, the full effect of its

---

\* includes 1,700 square miles of water.





proximity is offset climatically by the mountain ranges which exclude the moderating marine air masses. These mountains also make transportation expensive.

The absolute location of the Yukon is more favourable to economic development than that of much of northern Canada. The Yukon border is only very few miles from the Pacific Ocean and Whitehorse is only 110 miles by rail from the ice-free ocean port of Skagway. This is most significant for a resource-orientated economy. However, Whitehorse is 1,010 air miles\* from Vancouver and 1,023 air miles from Edmonton:\*\* these distances are significantly more than the distance of Pine Point from Edmonton or Thompson from Winnipeg. However, the relative location of the Yukon is made poorer because of the transportation facilities. Unlike other northern centres which are tied-in directly with the North American railway system and have quite direct highway systems, the Yukon must rely upon circuitous systems designed to low levels of technological service. The Alaska Highway was constructed in a location and to a standard appropriate to a war-time emergency and the White Pass & Yukon rail road has only a 3' gauge.

The limited development of transportation services is in part attributable to the physical environment, in part due to historical accidents and in part due to the limited demonstrated demand for transportation service. Naturally, the small size of the economy is in part because of the nature of the transportation facilities, but it is fruitless to speculate in a general way on the size of the economy if the Yukon had been provided with different transportation services.

---

\* via Terrace.

\* via Grand Prairie and Fort St. John.



In 1966 the population of the Yukon was only 14,382 i.e. less than the total population of Nanaimo, British Columbia.\* The biggest city in the Yukon is Whitehorse with a population of 4,771 in 1966, almost double the population for 1951. The other major communities are Watson Lake (597), Dawson (742) and Mayo (479).

The economy of the Yukon has been based on the production and export of staple products, especially gold, silver and other metal concentrates. The first phase of economic development was the gold rush at the turn of the century. About 80,000 people are estimated to have come from all corners of the earth to search for the elusive gold. While the majority of these fortune seekers did not remain in the Yukon for long, some did make their permanent home there. The gold rush also left the Yukon with a major legacy, the narrow gauge railway from Skagway to Whitehorse completed in 1900. Until the Second World War the small population was primarily dependent on gold and silver mining. However, the construction of the Alaska Highway brought renewed activity. Construction of the highway and the Canol pipeline created substantial employment. Traffic on the White Pass and Yukon railway reached unprecedented levels:

"... the traffic moved finally culminated in a epochal August 4, 1943 when the White Pass moved thirty-eight trains north and south (which meant 2,236 locomotive miles in twenty-four hours), and 3,446 gross at 2,085 net tons were hauled from Skagway to Whitehorse."

The highway, although built hastily to a low standard to meet a military emergency, made it easier for mining exploration and development to be carried out and provided a basis for a new industry, tourism.

---

\* 15,188 in 1966.





The United Keno Hill Mines Ltd., started its silver-lead-zinc operations in the late 1940's and since then has accounted for a large proportion of mineral production in the Yukon, in 1963 69% of the total value of the territory's output.<sup>3</sup>

Mining dominates the Yukon economy in spite of the development of tourism. This dominance may well increase as a result of current developments which are leading to the evaluation of several mineral deposits. G.J. Brown suggests that "the results of this reassessment ... it indicates that the Yukon's mineral output should rise to \$30,000,000 by 1970 and by 1975 production could exceed \$50,000,000."<sup>4</sup>

The pattern of development is vital to the expansion of the transportation system. There are four general mining districts within the Yukon. The Mayo mining district has been the most productive one since the early fifties due to the presence of United Keno Hill Mines Ltd. While the Whitehorse mining district and the Dawson mining district have not been very productive in recent years, the present development work by Anvil Mining Corporation in the Ross River area, by Cassiar Asbestos at Clinton Creek, by New Imperial Mines Ltd., near Whitehorse, and by several smaller mining companies is a strong indication of rising production in these districts in the near future. The Watson Lake mining district has little production activity within the Yukon boundaries, even though just south of the B.C. - Yukon border is the Cassiar Asbestos mine at Cassiar, while the Canada Tungsten operation is just west of the Yukon - Northwest Territories border.

In spite of the dominance of mining in the Yukon economy, one peculiar feature of the economy is the significance of employment in Government service. No statistics are published solely for the Yukon but the pattern shown in Table 1 for the Yukon and Northwest Territories is indicative of the position within the Yukon alone. The relative importance of Government employment can be expected to decline as mining, tourism and other economic activities expand.



TABLE 1

TAXABLE RETURNS BY PROVINCE  
AND OCCUPATION 1965 TAXATION YEAR

(000's of Dollars)

|                           | Alberta     | Yukon & N. W. T. | British Columbia |              |             |              |
|---------------------------|-------------|------------------|------------------|--------------|-------------|--------------|
|                           | Number      | Total Income     | Number           | Total Income |             |              |
| Employees in Business     | 225,468     | 1,065,741        | 4,903            | 25,336       | 385,802     | 1,979,168    |
| Employees of Institutions | 21,046      | 70,055           | 298              | 1,030        | 29,759      | 109,845      |
| Teachers                  | 16,679      | 95,652           | 428              | 2,543        | 19,711      | 123,128      |
| Federal Employees         | 12,504)     | 61,563)          | 2,718)           | 15,958)      | 23,581)     | 121,801)     |
| Provincial Employees      | )           | )                | )                | )            | )           | )            |
|                           | 24,479) 19% | 107,350) 17%     | 498) 36%         | 2,496) 51%   | 34,143) 15% | 181,488) 13% |
| Municipal Employees       | )           | )                | )                | )            | )           | )            |
|                           | 18,717)     | 88,179)          | 72)              | 358)         | 19,459)     | 96,163)      |
| Unclassified              | 5,320       | 16,694           | 75               | 572          | 9,330       | 31,980       |
| Totals                    | 324,213     | 1,505,234        | 8,992            | 48,292       | 521,783     | 2,643,513    |

Source: Taxation Statistics 1967, Department of National Revenue, Taxation Division.  
(Queen's Printer, Ottawa, 1967)





A resource-based export-orientated economy has to be served by an efficient transportation system so that the distribution costs enable the products to compete in world markets and so that transportation costs on in-bound supplies can be held to a reasonable level. However, the small size of the Yukon economy as well as the physical environment have prevented the development of transportation systems with the technical levels of service and capacities of other parts of Canada. However, short lived historical events have also played a significant part in the development of the region's transportation system.

The gold rush resulted in the early availability of railway service and this railway still serves the economy well. However, with a new period of expansion in sight, serious doubts exist about the adequacy of the railway route. Less fortuitous for the development of the Yukon was the manner in which it obtained its first land link with the Canadian domestic transportation system. The location and design of the Alaska Highway were both conditioned by the emergency military requirement. The location of airstrips was more important than the location of resources and the highway does not follow the route recommended in earlier economic studies.\* The Yukon obtained a road link earlier than would otherwise have been the case but has been left with a legacy of a tortuous road in the wrong place.

Because of the inter-dependence of transportation and economic development the selection of the correct technology and correct location are vital for transportation investments. The next section of this report describes the current transportation services to provide the foundation for assessing future transportation requirements.

---

\* See pages 73 and 74.



## SECTION 2

### THE EXISTING TRANSPORTATION SERVICES

The Yukon Territory is served by three transportation systems:

- i. The White Pass and Yukon route: this includes ship service between Vancouver and Skagway, railway and pipeline transportation from Skagway to Whitehorse, and truck transportation from Whitehorse to other parts of the Yukon and Northern British Columbia.
- ii. The overland trucking system: The Yukon is served by trucking via the Alaska highway, the main movements being from Vancouver, Edmonton or by inter-line shipment with the Pacific Great Eastern Railway at Dawson Creek. Within the Yukon a large number of companies perform trucking transportation. A scheduled bus service is maintained by Canadian Coachways into the Yukon from Edmonton.
- iii. The air transport system: the Yukon is served by a number of scheduled services but the scheduled service is dominated by the Canadian Pacific Airlines service from Vancouver. However, non-scheduled services also play an important part in the aviation service, particularly, for services within the Yukon.

For sixty-eight years transportation services to and from the Yukon territory have been dominated by the White Pass and Yukon railway. It is estimated that currently 90% of the northbound and southbound freight movement by weight is handled by the railway and its trucking subsidiary, Loiselle Transport Limited. The following Table shows volumes of freight handled by the major public carriers in 1967, Table 2.





TABLE 2

FREIGHT AND EXPRESS MOVEMENTS IN AND  
OUT OF THE YUKON TERRITORY, 1967  
(Including Cassiar, B.C.) - Tons

|  | <u>Total<br/>Freight</u> | <u>Northbound</u> | <u>Southbound</u> |
|--|--------------------------|-------------------|-------------------|
| White Pass & Yukon Railway             | 188,000*                 | 66,000            | 122,000           |
| Loiselle Transport                     | 16,200                   | 6,700             | 9,500             |
| Canadian Freightways                   | 9,500                    | 7,500             | 2,000             |
| Canadian Pacific Airlines <sup>#</sup> | 398                      | 327               | 71                |
|  | <hr/>                    | <hr/>             | <hr/>             |
| Total                                  | 214,098                  | 80,527            | 133,571           |
|  | <hr/>                    | <hr/>             | <hr/>             |

\* Does not include 60,000 tons of diesel fuel which is pipelined to Whitehorse from Skagway.

<sup>#</sup> Includes mail.

Source: Company records: Canadian Freightways, Canadian Pacific Airlines, Loiselle Transport and White Pass & Yukon Railway.

To provide a clear picture of the services provided by the transportation systems the physical facilities will be described first, then the commodity flow characteristics of each mode, prior to examining the costs and level of competition.

#### A. Transportation Facilities

##### 1. The White Pass and Yukon route.

The White Pass and Yukon railway is unique in North America. The railway still occupies the same right-of-way upon which it was constructed at the height of the Klondike gold rush in 1898. The toughest part of the 110.7



mile right-of-way is the 20 miles out of Skagway, Alaska, where the average grade is 2.6% and the steepest grade is 3.9%. The railway's history has been one of feast and famine.

The Klondike gold rush was over within six months of the completion of the line, and the railway has been on the verge of bankruptcy on several occasions. The immense work load placed on the railway during World War II resulted in control passing to the U.S. Army until July 1946. In the post-war period the economic position of the Company has gradually improved as the economy of the Yukon has expanded.

The railway between Skagway and Whitehorse is geared to a low volume operation. One train a day is operated in each direction over the 36" gauge tracks in which the lines are placed directly on the railway ties. Since 1963 the railway has only used diesels; a pair of diesels can haul 410 tons from Skagway to Whitehorse, 620 tons with the use of a third unit; southbound two units can haul 620 tons all the way to Skagway unassisted.

The Yukon territory has been fortunate in having available to it a railway constructed during the optimism of the gold rush, but the Company and the territory are continuously faced with the problem of up-dating the facilities so that they provide a service commensurate with today's needs.

The main improvement which has been made in the operations in recent years has been the utilization of containerization. The use of water, rail and truck transport has led to the use of containers to cut down on trans-shipment handling costs. From 1956 to 1965 the Company used the "Clifford J. Rogers" for the sea haul; since 1965 they have used the specially-designed container ship the "Frank H. Brown."



In order to understand the nature of commodity movements on the White Pass and Yukon Railway in contrast with other railways, the company's handling of goods will be described. As an illustrative description of the movement of goods, commodity "X" will be traced from Vancouver warehouse to mine site at Cassiar in Northern British Columbia.

Assume commodity "X" is a container load, that is, goods which will occupy and 8' x 8' x 25'3" aluminum and steel box with capacity of 40,000 lbs. The shipper may have the goods picked up either from his Vancouver area warehouse (pick-up charge is included in the rate), or he can have an empty container delivered to his warehouse and load it himself with a rate reduction of 20¢ per cwt. White Pass management justify the discount in view of the very high labour costs incurred in hiring longshoremen to pack the containers at the company wharf. In addition to the pick-up service mentioned above, the tariff includes delivery service and cargo insurance.<sup>5</sup>

Once the goods have been loaded and the container locked, it is loaded on the company's specially designed container ship, the "Frank H. Brown." To move these cumbersome containers from warehouse to dockside (they have a payload equivalent to a medium size truck) the company has invested in six straddle carriers. (The carriers are so large they can straddle a truck or a railway flat car, to place the containers aboard.) The containers and other materials, including open topped containers, called trays, are then loaded by the ship's gantry crane which moves fore and aft on rails, enabling it to service all seven of the ship's holds. The crane can lift up to 40 tons as well as being able to lift and replace the ship's hatch covers.





A total of 258 containers can be accommodated, 200 of which can be stowed in holds which are specially designed container cells, enabling the steel framed aluminum containers to be stacked four high. The remaining containers can be stowed on deck. To prevent any damage from the weather in transit the containers are available in four modified forms. The dry containers are used for hard goods that are not affected by temperature extremes. The vented containers permit a constant flow of fresh air, and are used for transporting hardy perishables during summer months. Heated containers are used for transporting freight that must be kept warm during freezing weather. Similarly refrigerated containers are available.

The ship is also equipped to carry petroleum products, having 12 tanks with a capacity of 900,000 gallons. The "Frank H. Brown" makes a round trip from Vancouver to Skagway every two weeks, 25 trips a year, with the sailing time being just less than three days from Vancouver to Skagway.

After the containers are unloaded at Skagway they are moved to Whitehorse on railway flatcars, one to a car, held in place by a special cone-shaped holding device. Once again transfer is made by using straddle carriers. Perishables are moved to Whitehorse on the day that they are unloaded, if possible, but it may be a further five to ten days before low priority freight reaches Whitehorse.

Once in Whitehorse the containers are moved off the train to await further movement by truck or to be opened and the contents distributed in the Whitehorse area. A shipment to Cassiar will probably be put straight onto a flat deck truck and delivered via the Alaska Highway, the goods still being under lock and key. In this case the entire container is moved by truck because the entire load is going to one destination, and what is more important,



there is a backhaul of goods readily available. Sacks of processed asbestos are available to fill the container for the haul back to Whitehorse and then to Vancouver. Unfortunately such situations are unusual in the company's area of distribution. Many shipments outside the Whitehorse area are less than container lots, which means the container bulk must be broken at Whitehorse for distribution. As a result White Pass must use regular semi-trailer trucks for small deliveries with little chance for backhaul.

Mining companies such as United Keno Hill invest in their own truck fleets to move ore concentrates to the Whitehorse terminal, and equip some trucks with low slung tanks to provide backhaul in the form of petroleum products.

The pipeline operated by the White Pass and Yukon railway is the only remaining part of the Canol pipeline constructed by the U.S. Army in 1944-45. The 4" pipeline is used to transport diesel fuel from Skagway to Whitehorse; it has a daily capacity of 3,000 barrels, several times the current needs of the district. Gasoline is transported by tank car to Whitehorse where there is a tank farm for storage.

## ii. Highway Transportation

The availability of highway transportation service is generally dependent upon two separate decisions; the first on the part of Government to construct a road or give financial assistance to road construction; the second, the decision of private firms to operate vehicles on these roads.

### (a) Roads

The roads of the Yukon are shown in Figure 1. The overall road system can be sub-divided into a number of classes, firstly on the basis of quality and secondly on the basis of the nature of Government responsibility.









With the exception of town streets, roads are unpaved. Road quality, therefore, varies according to width, curvature, etc., generally consistent with the purpose of the road and, therefore, the volume and nature of the traffic, Table 3.

Table 4 shows the breakdown of the highways system according to the agency responsible.

The northwest highway system is made up of the Alaska Highway, the Haines road and the Watson Lake airport road. These roads were constructed by the United States Army and are now maintained by the Federal Department of Public Works.

The development roads are those constructed or being constructed under the development programs of the Department of Indian Affairs and Northern Development. Depending on the specific purpose of the road the Department may pay all (area development roads and network and communication roads) or part (permanent access roads) of the construction cost. The costs of maintenance are shared eighty-five per cent by the Department and fifteen per cent by the Territory. The road construction program is presently taking place under the ten-year program providing for an annual expenditure in the Yukon of about 5 million dollars.

The tote roads or initial access roads are low standard roads to facilitate access for an established resource exploration program. The Department of Indian Affairs and Northern Development may pay as much as fifty per cent of the construction cost; the road is maintained by the primary user. The program has been in effect since 1961; annual expenditures under this particular program are shown in Table 5.



TABLE 3

MINIMUM DESIRABLE ROAD STANDARDS<sup>a</sup>.

| Type                      | Desirable <sup>b</sup> .<br>Design Speed  | Width of<br>Right of Way                  | Width of<br>Travelled<br>Surface   | Width of<br>Shoulders<br>(each) | Bridge<br>Width &<br>Height | Maximum<br>Grade   | Maximum<br>Curvature |
|---------------------------|---|---|------------------------------------|---------------------------------|-----------------------------|--------------------|----------------------|
| Area Development Road     | 50 m.p.h.   | 100'                                      | 18'c.                              | 3'                              | 24' & 14'<br>6"             | 10%                | 20°                  |
| Permanent Access Road     | 50 m.p.h.   | 100'                                      | 18'c.                              | 3'                              | 24' & 14'<br>6"             | 10%                | 20°                  |
| Initial Access Road       | 25 m.p.h.   | 50'                                       | 12' Min. with<br>turnouts<br>18'c. | nil                             | 12' & 14'<br>6"             | 14%                | 35°                  |
| Resource Development Road | 50 m.p.h.   | 100'                                      |                                    | 3'                              | 24' & 14'<br>6"             | 10%                | 20°                  |
| Tote                      | Tote Road may be constructed to whatever standard that will provide suitable access to property of individual |   |                                    |                                 |                             |                    |                      |
| Trunk                     | 60 m.p.h. <sup>d</sup> .  | 150'                                      | 24'                                | 4'                              | 28' & 14'<br>6"             | 5%                 | 7°                   |
| Secondary Trunk           | 40 m.p.h.   | 70'                                       | 18'                                | 2'                              | 24' & 14'<br>6"             | 12%                | 14°                  |
| Airport                   | 30 m.p.h.   | 70'                                       | 18'                                | 2'                              | 24' & 14'<br>6"             | 12%                | 14°                  |
| Local                     | 30 m.p.h.   | 100' or<br>full dedicated<br>right of way | 18'                                | 4'                              | 24' & 14'<br>6"             | 14% <sup>e</sup> . | 30°f.                |

a. Particular sections of road may be built to lesser standards where difficult terrain makes strict adherence to stated standards excessively costly.

b. Desirable design speed is not related to minimum standards shown.

c. 18' width should be considered as absolute minimum as any less width would be dangerous when heavy duty trucks meet.

d. Trucks 55 m.p.h.

e. & f. Required for various street layouts.

Note: Bridge design on all roads H20-S16.

Source: Federal Department of Public Works, Whitehorse.





TABLE 4

ROAD MILEAGE BY TYPE IN THE YUKON 1967

|             |  |                |
|-------------|--|----------------|
| Federal     | - Northwest Highway System (Alaska Highway,<br>Haines Road and Watson Lake Airport Road)<br>(An additional 666.5 miles of the Alaska<br>Highway are in B.C.) | 727.3 miles    |
| Federal     | - Development Roads  | 113.70         |
| Territorial | - Territorial Roads  | 414.4          |
| Private     | - Tote Roads   | N.A.           |
| Private     | - Winter Roads   | N.A.           |
|             | Total available  | <u>2,278.7</u> |

TABLE 5

TOTE ROAD ASSISTANCE PROGRAMME  
ANNUAL EXPENDITURES

|           |         |
|-----------|---------|
| 1961 - 62 | 50,000  |
| 1962 - 63 | 44,733  |
| 1963 - 64 | 44,029  |
| 1964 - 65 | 69,942  |
| 1965 - 66 | 59,264  |
| 1966 - 67 | 100,000 |

Sources: N.G. Needham, "Tote Trail Progress Report", May 1966  
K. Baker, Dept. of Engineering, Whitehorse.



Winter roads are constructed by companies to provide access either for tractor trains or trucks. The actual number of winter roads used cannot be determined; however, the Federal Department of Public Works in Whitehorse indicates that the major examples used since 1960 are as shown in Table 6.

In most cases these roads are "one shot" efforts, built without Government assistance and costs are not readily available. Based on oral statements of operators, costs would seem to vary between \$500 and \$1,000 per mile.

#### (b) Trucking

Three public companies and one private company dominate the highway transport services into, out of, and within the Yukon. The public companies are Canadian Freightways Limited, Loiselle Transport Limited and the White Pass and Yukon Railway, Highway Division. The private company is the Cassiar-Keno Transport Division at Whitehorse. There are a number of smaller carriers which operate up and down the Alaska Highway, for example, Alaska Highway Express, and within the Yukon Territory, some specializing in the contract hauling of machinery, oil well drilling equipment, and truck load lots of construction supplies, for example, Gordies Trucking Limited. The only comprehensive quantitative measure of all trucking is provided by motor vehicle registrations, shown in Appendix 1. However, the registrations include all vehicles from taxis and tow trucks to buses and inter-city trailers.

Highway transport is critical to the development of the Yukon economy. With only 59 miles of railway in the Territory, all commodities must be moved to or from railhead or tank farm by truck. Thus in 1966 of 118,000 tons of northbound traffic over the White Pass and Yukon railway and pipeline,





TABLE 6

ESTIMATED WINTER ROAD MILEAGE 1960 - 1967

| <u>Road</u>  | <u>Approx. Mileage</u> |
|--|------------------------|
| 1. Wind River Trail, Mayo to Bell River<br>Drill Site        | 330                    |
| 2. Dempster Highway to various drill sites,<br>Socony-Mobile | 400                    |
| 3. Teslin-Tintina Silver Mines                               | 120                    |
| 4. Burwash Landing - Casino Silver Mines                     | 180                    |
| 5. Carmacks - Mt. Nansen Mines                               | 40                     |
| Total  | <u>1,070</u>           |

Source: Federal Department of Public Works, Whitehorse.



51,800 tons were delivered beyond Whitehorse.<sup>6</sup> The White Pass and Yukon Corporation, Highway Division, handles the movement of most inbound commodities past the rail terminus at Whitehorse as the rates ex Vancouver include pick-up and delivery. In addition gasoline and fuel oil are trucked from the Whitehorse tank depot to all accessible points in the territory, and south along the Alaska Highway into Northern British Columbia.

The southbound movement of concentrates and asbestos fibre (122,000 tons in 1967) travels from 9 to 395 miles by truck to railhead at Whitehorse. The Cassiar-Keno Transport Division hauls asbestos fibre from Clinton Creek and Cassiar, B.C., and concentrates from the Keno Hill Mine to Whitehorse, with a backhaul of all mine supplies except perishables and some petroleum products.

The two main common carriers on the Alaska Highway, Loiselle Transport Limited and Canadian Freightways Limited, operate scheduled service between Vancouver, Calgary, Edmonton, Dawson Creek and the Territory. Canadian Freightways Limited make available up to 20 units out of Dawson Creek for this service. Loiselle Transport Limited operate ex Edmonton, Dawson Creek and the north inter-lining with Vancouver-based carriers at Dawson Creek. Both companies have limited backhauls of mineral concentrates or asbestos fibre.

### iii. Air Transport

Air Transport plays an important role in Northern Canada and is essential for the development of the Yukon economy. Like highway transport, the service which aviation can provide is partly dependent on Government investment and partly dependent on private enterprise. Since many aviation services are provided without public airports, the companies providing service will be described first.



### (a) Aviation Companies

Three companies provide scheduled services, Canadian Pacific Airlines, Wein Air Alaska and Great Northern Airways, Figure 2. While the scheduled carriers and especially Canadian Pacific Airlines dominate available passenger and cargo statistics, other companies play an important role in internal movements in particular. All commercial air services provided in the Yukon and adjacent points are listed in Appendix 2. In recent years, the substitution of helicopters for fixed wing aircraft, particularly for mineral exploration, has been notable.

### (b) Airports

There is no complete list of airports. The Canadian aerodrome directory does not include all unlicensed aerodromes; Table 7, while based on this directory, is supplemented for as many sources as possible. Both the Department of Transport and the Department of Indian Affairs and Northern Development have policy statements concerning airport development applicable to the Yukon. These policies will be considered further in Section 3. The Department of Transport has not constructed an airstrip in the Yukon since 1956.

## B. Commodity Movements and Selected Passenger Statistics

A knowledge of existing commodity flows is vital to the formulation of transportation policy. The information is basic to the evaluation of effective competition, the understanding of rates and costs and the making of realistic forecasts.

A transport market can be measured in several ways. The statistics relied upon here are tons of freight and numbers of passengers. Passenger statistics are provided only as ancillary information available from the White





TABLE 7

NUMBER OF AERODROMES BY TYPE OF OPERATOR - NORTH WEST CANADA  
1967

|   | Dot | Other Federal<br>Departments | Territorial/<br>Provincial |       | Municipal<br>Govt. | Commercial | Private | Other <sup>a</sup> . | Total |
|---|-----|------------------------------|----------------------------|-------|--------------------|------------|---------|----------------------|-------|
|   |     |                              | Govt.                      | Govt. |                    |            |         |                      |       |
| <u>Yukon Territory</u>                            |     |                              |                            |       |                    |            |         |                      |       |
| Land Aerodromes                                   | 8   | 2                            | 5                          | -     | 1                  | 1          | 1       | 2                    | 19    |
| Water Aerodromes                                  | -   | 1                            | 2                          | -     | 3                  | 1          | 4       | 4                    | 11    |
| Total Yukon                                       | 8   | 3                            | 7                          | -     | 4                  | 2          | 6       | 6                    | 30    |
| <u>Northwest Territories</u><br>(Dist. MacKenzie) |     |                              |                            |       |                    |            |         |                      |       |
| Land Aerodromes                                   | 8   | 2                            | -                          | -     | 5                  | -          | 13      | 13                   | 28    |
| Water Aerodromes                                  | -   | -                            | -                          | -     | 19                 | 1          | 8       | 8                    | 28    |
| Total Northwest Territories                       | 8   | 2                            | -                          | -     | 24                 | 1          | 21      | 21                   | 56    |
| <u>Northern British Columbia</u>                  |     |                              |                            |       |                    |            |         |                      |       |
| Land Aerodromes                                   | 8   | -                            | 3                          | 5     | 2                  | 7          | 2       | 2                    | 27    |
| Water Aerodromes                                  | -   | -                            | -                          | 3     | 7                  | 2          | 2       | 2                    | 14    |
| Total Northwest British Columbia                  | 8   | -                            | 3                          | 8     | 9                  | 9          | 4       | 4                    | 41    |
| <u>Heliports</u>                                  |     |                              |                            |       |                    |            |         |                      |       |
| Yukon   | -   | -                            | -                          | 1     | -                  | -          | -       | -                    | 1     |
| N.W.T.  | -   | -                            | -                          | 1     | -                  | -          | -       | -                    | 1     |
| Total   | -   | -                            | -                          | 2     | -                  | -          | -       | -                    | 2     |

a. Includes U.S.A.F., Emergency and non-operated strips.

Source: Canadian Aerodrome Directory, D.O.T., Ottawa, April, 1967.



FIGURE 2

SCHEDULED AIR SERVICES  
INTO, OUT OF AND WITHIN THE  
YUKON TERRITORY

(See Map in envelope affixed to back cover.)





Pass and Yukon Railway and the airlines. Freight statistics have been gathered where available from the main carriers.

An overall picture of the freight market is provided in Table 8. This Table is based on Company records except for the movements via the Alaska highway for which the Stanford Research Institute Report was used. The selection of 1964 thus enables a complete picture of the external commodity movements to be presented.

The Table shows the dominant position of the White Pass and Yukon railway, that Company being even more significant because of its trucking subsidiary, Loisel Transport Limited. However, the aggregate figures mask significant features of the transport market which can be indicated most effectively by studying each route separately.

#### i. The White Pass and Yukon Railway

Aggregate traffic flow: Table 9 shows the White Pass and Yukon rail traffic for the period 1962 to 1967. General merchandise, gas and oil are virtually entirely northbound movements while the mine products are southbound movements. In 1967 the southbound movement of general merchandise totalled only 1000 tons. The Table shows several significant trends:

- A substantial increase in total shipments since 1965.
- Marked increases in the level of general merchandise, asbestos and ore concentrate shipments.
- An increasing absolute disparity between north and southbound shipments.

These developments are clearly related to the mining communities served by the White Pass and Yukon railway route. Such surges of demand have been a fundamental feature of the railway since its inception. The significant feature of the current changes is that they are related to long term developments in the economy.



TABLE 8

COMMODITY MOVEMENTS INTO AND OUT OF THE YUKON  
BY MODE, 1964

A. INTO THE YUKON

| <u>Mode</u>                  | <u>General<br/>Freight<br/>and<br/>Household<br/>Effects</u> | <u>Petroleum</u> | <u>House<br/>Trailers</u> | <u>Air<br/>Mail</u> | <u>Total</u> |        |
|------------------------------|--|------------------|---------------------------|---------------------|--------------|--------|
| Truck, via Alaska<br>Highway | 14,130 tons  | 11,720 tons      | 104                       | -                   | 25,954 tons  | 38.3%  |
| Air                          | 216  | -                | -                         | 34                  | 250          | 0.4%   |
| White Pass                   | 25,000   | 16,547           | -                         | -                   | 41,547       | 61.3%  |
| Total                        | 39,346   | 28,267           | 104                       | 34                  | 67,751       | 100.0% |

B. OUT OF THE YUKON

| <u>Mode</u>                  | <u>General<br/>Freight<br/>and<br/>Household<br/>Effects</u> | <u>Asbestos</u> | <u>Ore<br/>Concen-<br/>trates</u> | <u>Air<br/>Mail</u> | <u>Total</u> |        |
|------------------------------|--|-----------------|-----------------------------------|---------------------|--------------|--------|
| Truck, via Alaska<br>Highway | 2,730 tons   | 10,248 tons     | -                                 | -                   | 12,978 tons  | 12.6%  |
| Air                          | 53   | -               | -                                 | 31                  | 84           |        |
| White Pass                   | 2,000  | 56,000          | 31,700                            | -                   | 89,700       | 87.3%  |
| Total                        | 4,783  | 66,248          | 31,700                            | 31                  | 102,762      | 100.0% |

Source: Company data and Stanford Research Institute Report.



TABLE 9

WHITE PASS AND YUKON RAILWAYFreight Traffic North and Southbound, 1962-1967 (Tons)<sup>a</sup>.

|                                       | <u>1962</u>       | <u>1963</u>       | <u>1964</u>       | <u>1965</u>       | <u>1966</u>       | <u>1967<sup>b</sup></u> |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------------|
| General<br>merchandise <sup>c</sup> . | 34,000            | 25,700            | 27,000            | 25,000            | 38,200            | 41,600                  |
| Gas and Oil                           | 18,422            | 22,075            | 16,547            | 20,707            | 22,647            | 23,358                  |
| Asbestos                              | 49,096            | 54,553            | 56,033            | 56,400            | 80,010            | 85,249                  |
| Ore<br>concentrate                    | 26,966            | 28,161            | 31,711            | 29,447            | 23,945            | 37,000                  |
|                                       | <u>          </u> | <u>          </u> | <u>          </u> | <u>          </u> | <u>          </u> | <u>          </u>       |
| TOTAL                                 | 128,484           | 130,499           | 131,291           | 131,554           | 164,802           | 187,207                 |
|                                       | <u>          </u> | <u>          </u> | <u>          </u> | <u>          </u> | <u>          </u> | <u>          </u>       |
| Number of<br>Passengers               | 24,662            | 29,112            | 28,758            | 19,578            | 27,185            | 26,908                  |

a. Excludes Skagway traffic

b. Preliminary Figures

c. Rounded to the nearest hundred

Source: Whitepass and Yukon Railway, Rail Traffic Statements.





Origin and destination: The impact of the development activity at New Imperial Mines, Clinton Creek Mines and Ross River are clear in the destinations of northbound freight in the period 1965 to 1967, Table 10. The high proportion of freight consigned to Whitehorse reflects the role which the community plays as a break bulk and distribution centre for the region.

The volume of freight destined for Skagway from Seattle is evidence of the benefit that has been gained by the exemption of the traffic from the Jones Act. The exemption was given when Alaska steamships stopper operating into Skagway. The only other scheduled service available to Skagway now is the Alaska State Ferry system. This system now has the right to move Canadian highway traffic from Prince Rupert to the Yukon since the provision in the Canada Shipping Act favouring Canadian vessels has been lifted.

Commodity mix: While the broad categories of commodity mix are important, the share of the general freight market served by the railway is important in assessing the degree of competition with other modes of transport. Since the White Pass and Yukon railway dominates the transportation market, the Company carries a very wide range of commodities. Some of the most significant are liquor, groceries, especially canned goods, and a wide range of consumer supplies, construction equipment and machinery. An indication of the competition for some high valued or perishable freight is shown in Table 11; in particular, meat is now moving almost entirely by truck from Edmonton.

In relation to other Canadian resource railways the White Pass and Yukon has a relatively limited dependence on mineral products although it has a low total volume of freight, Table 12. The diversity arises from the relatively high volume of general freight and fuel which provides a seasonable volume of backhaul traffic; the general freight is a major source of revenue.



TABLE 10

NORTHBOUND GENERAL MERCHANDISE TO SELECTED DESTINATIONS  
VIA THE WHITEPASS & YUKON ROUTE - 1965-1967

---

(tons)

|                        | <u>1965</u> | <u>1966</u> | <u>1967</u> |
|------------------------|-------------|-------------|-------------|
| Skagway (from Seattle) | 1,100       | 910         | 1,749       |
| Skagway                | 1,723       | 817         | 664         |
| Carcross               | 224         | 276         | 541         |
| Whitehorse             | 21,485      | 24,920      | 27,189      |
| Carmacks               | 107         | 81          | 35          |
| New Imperial           | -           | 1,663       | 1,664       |
| Mayo                   | 400         | 511         | 259         |
| Dawson                 | 806         | 768         | 752         |
| Clinton Creek          | 652         | 7,809       | 6,506       |
| Cassiar                | 8           | 179         | 241         |
| Ross River             | 32          | 538         | 2,326       |
| Other                  | 426         | 361         | 1,087       |
|                        | <hr/>       | <hr/>       | <hr/>       |
| TOTAL                  | 26,951      | 38,833      | 43,048      |
|                        | <hr/>       | <hr/>       | <hr/>       |





TABLE 11

VOLUME OF ANNUAL MOVEMENTS OF SELECTED COMMODITIES  
ON THE WHITE PASS AND YUKON RAILWAY, 1956 - 1966

|   |       | '000 lbs. |       |       |       |       |       |       |       |       |       |       |
|---|-------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|   |       | 1956      | 1957  | 1958  | 1959  | 1960  | 1961  | 1962  | 1963  | 1964  | 1965  | 1966  |
| 20. Agricultural implements                       | 1.1   | 15.0      | 9.8   | 11.8  | 2.2   | 13.7  | 2.6   | 2.6   | 2.6   | 3.4   | 1.5   | 8.3   |
| 30. Airplane parts                                | 4.1   | 2.1       | 1.7   | -     | 4.1   | 1.3   | 1.0   | 1.1   | 1.1   | -     | -     | 0.6   |
| 31. Airplane engines                              | -     | -         | 2.4   | 3.3   | 7.6   | 5.3   | 6.4   | 7.0   | 7.0   | 3.6   | 0.5   | 0.5   |
| 50. Household appliances                          | 157.2 | 188.2     | 182.5 | 248.2 | 282.1 | 299.4 | 265.6 | 181.6 | 170.1 | 166.1 | 207.5 | 207.5 |
| 145. Drugs, toiletries<br>medical supplies        | 109.9 | 112.7     | 515.9 | 105.7 | 134.1 | 133.6 | 140.4 | 113.1 | 106.6 | 112.3 | 202.9 | 202.9 |
| 165. Industrial electrical parts and<br>equipment | 356.2 | 384.3     | 495.5 | 221.9 | 451.8 | 243.5 | 306.2 | 171.9 | 196.2 | 195.3 | 202.9 | 202.9 |
| 365. Fresh meat & poultry                         | 34.7  | 42.0      | 19.4  | 6.3   | -     | 0.1   | 0.3   | 1.9   | -     | -     | -     | -     |
| 366. Frozen meats & poultry                       | -     | 149.5     | 12.6  | 8.3   | 21.1  | 19.0  | 41.1  | 78.3  | 55.1  | 8.1   | -     | -     |
| 12. Paper products (Not<br>otherwise classified)  | -     | 149.8     | 302.0 | 100.8 | 75.3  | 86.8  | 106.6 | 94.1  | 110.6 | 145.2 | 462.7 | 462.7 |
| 13. Manufactured paper<br>products                | -     | -         | -     | 187.4 | 275.6 | 274.7 | 310.1 | 321.0 | 256.6 | 271.4 | 251.8 | 251.8 |
| 14. Radios, televisions                           | 15.6  | 23.6      | 33.7  | 29.5  | 22.0  | 28.0  | 17.3  | 19.2  | 16.4  | 15.9  | 19.4  | 19.4  |

Source: Whitepass and Yukon Railway, Rail Traffic Statements.



TABLE 12

SOME CLASS II AND III RAILWAYS CARRYING MINERAL PRODUCTS  
(5 YEAR AVERAGE - 1962-1966)

|                          | '000 tons                |              |  |                |                |              |
|--------------------------|--------------------------|--------------|--|----------------|----------------|--------------|
|                          | <u>Agri-<br/>culture</u> | <u>Mines</u> | <u>Mines<br/>(Percentage<br/>of total)</u> | <u>Forests</u> | <u>General</u> | <u>Total</u> |
| Quebec<br>North Shore    | -                        | 14,438       | 98%  | 7              | 323            | 14,768       |
| Cumberland               | -                        | 3,385        | 99%  | 2              | 26             | 3,413        |
| Algoma Central           | -                        | 2,947        | 70%  | 534            | 690            | 4,171        |
| Roberval and<br>Saguenay | -                        | 2,397        | 80%  | -              | 481            | 2,878        |
| Napierville<br>Junction  | 14                       | 190          | 72%  | 2              | 58             | 264          |
| White Pass<br>and Yukon  | 1                        | 87           | 64%  | 1.3            | 45             | 134.3        |
| Northern Alberta         | 707                      | 126          | 12%  | 218            | 58             | 1,109        |
| All Canada<br>Railways   |                          |              | 15%  |                |                |              |

Source: Dominion Bureau of Statistics, Railway Transport Part V, 1966,  
Queen's Printer, Ottawa.



**Back haul:** In general, resource railways can be expected to have a high empty freight car-mile ratio due to inadequate freight to balance the heavy commodity movements. However, the White Pass and Yukon has a lower empty freight car mile ratio than even the Canadian average, Table 13. The relatively monopolistic position of the Company on account of the lower total cost of operation on the Vancouver-Skagway-Whitehorse route is a partial explanation.

**Seasonality:** The cost level of the railway is assisted by only a limited problem with seasonality. The southbound movement of mineral products does not have a regular or significant seasonality. Since more goods move south on the railway than north, the northbound peaking has not exceeded the capacity of the Company's facilities, Table 14. The Company's real concern has been to provide sufficient rail capacity to meet the increasing volume of southbound freight. The implications of the increasing volume of mineral products are the most significant issues in planning the development of the railway. During periods of heavy shipment of construction material, northbound tonnage may exceed the capacity of the "F.H. Brown", and close to 2 weeks may be required for rail shipment from Skagway to Whitehorse.

**Shipment size:** Thus far the discussion has been concerned with traffic statistics which showed the White Pass to have considerable advantage in traffic mix over similar railroads. However, the railway has one traffic characteristic which has been of considerable concern to the Company, namely, the large number of small shipments they have been required to handle in the northbound movement of the general merchandise, Tables 15 & 16. Because the size of the individual shipments is small, terminal handling costs, particularly in Vancouver, are very high.

In March 1967, to encourage shipment consolidation and increased shipment size in general, the Company introduced a new tariff. The tariff consolidated a multiplicity of items and provided a range of incentive rates for heavy loading.





TABLE 13

PERCENTAGE OF EMPTY FREIGHT CAR MILES,  
ALL CANADIAN RAILWAYS AND SELECTED "MINERAL" LINES

|      | All<br>Canadian<br>Railways | White Pass &<br>Yukon Railway | Quebec<br>North Shore | Cumberland | Algoma<br>Central | Roberval<br>& Saguenay | Napierville<br>Junction | Northern<br>Alberta |
|------|-----------------------------|-------------------------------|-----------------------|------------|-------------------|------------------------|-------------------------|---------------------|
| 1962 | 37                          | 20                            | 49                    | 47         | 38                | 49                     | 44                      | 40                  |
| 1963 | 37                          | 14                            | 49                    | 48         | 40                | 47                     | 49                      | 39                  |
| 1964 | 35                          | 20                            | 49                    | 49         | 38                | 46                     | 45                      | 40                  |
| 1965 | 35                          | 21                            | 49                    | 49         | 39                | 48                     | 43                      | 39                  |
| 1966 | 36                          | 20                            | 49                    | 47         | 33                | 49                     | 41                      | 43                  |

Source: Dominion Bureau of Statistics, Railway Transport Part IV, 1966  
(Operating and Traffic Statistics).



TABLE 14

ANALYSIS OF SEASONALITY  
WHITEPASS & YUKON RAILWAY AND CANADIAN CLASS I & II RAILWAYS

(The Maximum and Minimum Revenue Months are  
expressed as a Percentage of the Total Year's Revenue)

|      | White Pass<br>(north bound<br>rail traffic only) |                | Freight Car Revenue<br>aggregate of Class I & II<br>Canadian Railways |                |
|------|--|----------------|---|----------------|
|      | <u>Maximum</u>                                   | <u>Minimum</u> | <u>Maximum</u>  | <u>Minimum</u> |
| 1961 |  |                | July 12.2%  | Jan. 7.8%      |
| 1962 | July 11.5%                                       | Dec. 5.2%      | Nov. 10.6%  | Feb. 8.0%      |
| 1963 | March 10.0%                                      | Dec. 6.0%      | May 11.0%   | Feb. 7.9%      |
| 1964 | June 13.0%                                       | Jan. 4.1%      | June 9.0%   | Feb. 7.7%      |
| 1965 | June 10.6%                                       | Jan. 5.1%      |   |                |
| 1966 | August 11.0%                                     | Jan. 5.3%      |   |                |
| 1967 | July 11.0%                                       | Feb. 7.2%      |   |                |
|      | (for 11 months)                                  |                |   |                |

The average percentage difference between seasonal highs and lows  
as shown above:

|                              |                             |
|------------------------------|-----------------------------|
| White Pass and Yukon Railway | 5.9% average seasonal range |
| Aggregate                    | 2.9% average seasonal range |



TABLE 15

A. DISTRIBUTION OF SHIPMENTS ACCORDING TO REVENUE

|                   | <u>1961</u> | <u>1962</u> | <u>1963</u> | <u>1964</u> | <u>1965</u> | <u>1966</u> |
|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Less than carload | 12.5%       | 12.5%       | 14.0%       | 13.2%       | 11.0%       | 10.0%       |
| Mixed carload     | 22.5        | 23.0        | 25.0        | 22.7        | 22.0        | 19.0        |
| Straight carload  | 25.0        | 24.0        | 38.0        | 30.0        | 37.5        | 40.0        |
| Volume carload    | 22.0        | 23.0        | 12.0        | 15.0        | 15.5        | 8.8         |
| Carload           | 21.5        | 21.7        | 21.7        | 20.8        | 16.0        | 20.0        |
|                   | 100.0%      | 100.0%      | 100.0%      | 100.0%      | 100.0%      | 100.0%      |

B. DISTRIBUTION OF SHIPMENTS ACCORDING TO WEIGHT

|                   | <u>1961</u> | <u>1962</u> | <u>1963</u> | <u>1964</u> | <u>1965</u> | <u>1966</u> |
|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Less than carload | 10.0%       | 10.0%       | 9.7%        | 17.5%       | 9.8%        | 8.0%        |
| Mixed carload     | 18.0        | 22.0        | 20.5        | 17.0        | 18.2        | 13.0        |
| Straight carload  | 28.0        | 26.3        | 33.0        | 30.0        | 40.0        | 48.0        |
| Volume carload    | 24.0        | 20.0        | 16.2        | 18.5        | 15.0        | 12.5        |
| Carload           | 19.5        | 20.0        | 18.8        | 17.0        | 15.2        | 17.5        |
|                   | 100.0%      | 100.0%      | 100.0%      | 100.0%      | 100.0%      | 100.0%      |

Source: Company Records, White Pass and Yukon Railway.





TABLE 16

DISTRIBUTION OF NUMBER OF SHIPMENTS ACCORDING TO SIZE  
WHITE PASS AND YUKON RAILWAY

| <u>Shipment Size</u><br><u>(Pounds)</u> | <u>June 1966</u> | <u>June 1967</u> |
|---|------------------|------------------|
| 0 - 100                                 | 15.0%            | 21.0%            |
| 100 - 1,000                             | 62.0             | 48.0             |
| 1,000 - 2,000                           | 10.0             | 8.0              |
| 2,000 - 5,000                           | 7.5              | 7.0              |
| 5,000 - 10,000                          | 2.0              | 3.0              |
| Over 10,000                             | 4.0              | 10.0             |
|   | <u>100.0%</u>    | <u>100.0%</u>    |

Source: White Pass and Yukon Route Waybills for the months of June 1966 and 1967.

TABLE 17

DESTINATION OF NORTHBOUND GENERAL FREIGHT TRIPS, 1964

| <u>Origin</u>    | <u>Destination (number of trips)</u> |                    |                    |                   |               | <u>Total</u> |
|------------------|--------------------------------------|--------------------|--------------------|-------------------|---------------|--------------|
|                  | <u>Fort St. John</u>                 | <u>Fort Nelson</u> | <u>Watson Lake</u> | <u>Whitehorse</u> | <u>Alaska</u> |              |
| Edmonton-Calgary | 85                                   | 85                 | 469                | 625               | 156           | 1,420        |
| Vancouver        | 37                                   | 42                 | 74                 | 237               | 74            | 464          |
| Can. Prairies    | 11                                   | 11                 | -                  | 36                | 31            | 89           |
| Total            | <u>133</u>                           | <u>138</u>         | <u>543</u>         | <u>898</u>        | <u>261</u>    | <u>1,973</u> |

Source: Calculated from data in the Stanford Research Institute Report. Note comparative rates in Table 27A.



Table 16 supports the belief that the tariff is having its desired effect. The result of the tariff was to reduce general merchandise rates by approximately 6%. The full extent of the cost and rate savings will not be known till the tariff has been in operation for a longer period of time.

#### ii. Highway Transportation

The diversities of companies performing transportation into and out of the Yukon via the Alaska highway precludes an estimate of the 1967 volume of total traffic. However, information obtained from the major carriers of general freight combined with the results of the Stanford Research Institute's Report enable the significant characteristics of the movement to be outlined.

Origin and destination: A significant amount of petroleum moves into the Yukon by the Alaska Highway, for 1964 it was estimated as over 11,000 tons. Some of this comes from Edmonton but four fifths comes from Taylor Field at Fort St. John. Most of the petroleum travels only as far as Fort Nelson, but up to 24 per cent moves into the Yukon, of which more than two thirds goes to Watson Lake.

The movement of general freight also shows the importance of trucking via the Alaska Highway in the southern areas. (Table 17) While Whitehorse was the major single destination its importance to trucking is less than proportional with the population distribution in the Yukon and far less than the importance of Whitehorse to the White Pass and Yukon railway. In 1964 the number of trips to Watson Lake via the Alaska Highway were 61% of the Whitehorse trips.

During 1967 Watson Lake was an even more important destination for traffic because of the special need of the Canada Tungsten Mine for construction materials. However, it is evident that as a result of the trucking services, communities in the southern and central section of the Alaska Highway have a choice between two distribution systems for certain freight.



Commodity mix: The analysis of the White Pass and Yukon traffic shows the tonnage of certain perishables (meat) has declined absolutely, the tonnage of other high valued freight has shown a relative decline when compared to the total movement of general freight. The service differential which can be offered by trucking, even out of Vancouver, can more than compensate for a higher freight rate when storage costs, inventory and service factors are taken into account. The ability of trucking to achieve second or third day delivery in Whitehorse from Edmonton makes the service ideal for commodities such as perishables (particularly meat and packing house products, fresh and frozen produce), replacement parts for industrial equipment and many high value goods which are ordered on request by a dealer to lessen his inventory risk. In addition, building products and cement and small quantities of beer and lumber are hauled.

Backhaul: The backhaul problem faced by the truckers is serious. Unlike the railway the heavy volume of traffic is northbound. For example, in 1967 the weight of southbound freight hauled by Canadian Freightways was only 27% of the northbound volume. General merchandise backhaul is very limited and generally of low value (for example empty beer bottles) so that the main companies back haul mine products.

Loiselle Transport carries asbestos fibre from Cassiar, B.C. to railhead at Fort St. John and Canadian Freightways hauls tungsten concentrates for Canada Tungsten from Watson Lake to Vancouver.

Seasonality: Trucking also appears to be afflicted with a significantly greater problem of seasonality than the White Pass and Yukon railway. Table 18 shows the range in the White Pass and Yukon Company's Highway Division revenue for the period 1962 to 1967. In 1967 the minimum month, January, for Canadian Freightways accounted for only 3.3% of the year's total freight; July the maximum month accounted for 14.8%. This seasonality, together with the backhaul problem, pose obvious problems in equipment utilization.





TABLE 18

ANALYSIS OF SEASONALITY  
WHITE PASS & YUKON COMPANY, HIGHWAY DIVISION

(The maximum and minimum revenue months are expressed  
as a percentage of the total year's revenue)

White Pass Trucking Revenue\*

|                 |           | <u>Maximum</u> |          | <u>Minimum</u> |
|-----------------|-----------|----------------|----------|----------------|
| 1962            | June      | 18.0%          | December | 1.9%           |
| 1963            | February  | 17.0%          | October  | 3.1%           |
| 1964            | March     | 19.0%          | January  | 5.0%           |
| 1965            | November  | 25.0%          | January  | 1.8%           |
| 1966            | September | 13.0%          | June     | 5.3%           |
| 1967            | July      | 15.6%          | November | 3.0%           |
| (for 11 months) |           |                |          |                |

The average percentage difference between seasonal highs and lows  
as shown above.

Trucking revenue 14.6% average seasonal range.

\*Revenue allocated to trucking from through hauls and local business.

Source: Company Records, White Pass and Yukon Railway

TABLE 19

PERCENTAGE DISTRIBUTION OF SHIPMENTS BY WEIGHT TO WHITEHORSE, Y.T. 1967  
CANADIAN FREIGHTWAYS LTD.

|                | <u>1-100 lbs.</u> | <u>100-1000 lbs.</u> | <u>Over 1000 lbs.</u> |
|----------------|-------------------|----------------------|-----------------------|
| From Edmonton  | 46                | 45                   | 9                     |
| From Vancouver | 39                | 53                   | 8                     |

Source: Canadian Freightways Ltd., Company Records.



**Shipment size:** Because the truckers serve the service-orientated section of the transportation market, they have a higher proportion of small shipments than the railway, Table 19. During 1967 between 8 and 9 per cent of Canadian Freightway's shipments were over 1,000 lbs; in June 1967, 28% of the railways shipments were over this weight.

### iii. Air Transport

Airline movements of freight into the Yukon are insignificant by weight, Table 8. However, the value of the items transported makes the services of significance and the performance of the freight service is partially a reflection of the overall level of airline service.

**Origin and Destination:** The flow pattern of air freight is dominated by Whitehorse and Vancouver, Tables 20 and 21. However, the freight originating in Alberta or moving via Alberta is important because the freight from B.C. and flying via Prince George is combined with the eastern provinces freight at Fort St. John. This may result in freight being bumped at this station. It is partly because of this that about one third of the freight flies as express, Table 22.

**Commodity mix:** The commodities carried are largely perishables or emergency shipments, Table 23.

**Back haul:** The origin and destination statistics indicate that back haul is very limited as would be expected for a premium transportation mode.

**Seasonality:** In spite of occasional surges in demand from mining developments Canadian Pacific Airlines (CPA) is not faced with serious seasonal variations in cargo volumes, Table 24. Of far more concern to the airline is the daily pattern which peaks heavily at the end of the week, Table 25. It is at this time that the problem of bumped freight is most severe.



TABLE 20

ORIGIN OF AIRFREIGHT INTO THE YUKON 1963-1966

| <u>Origin</u>      | '000 lbs.    |              |              |              |
|--------------------|--------------|--------------|--------------|--------------|
|                    | <u>1963</u>  | <u>1964</u>  | <u>1965</u>  | <u>1966</u>  |
| Alberta (Edmonton) | 126.9        | 108.6        | 131.0        | 149.2        |
| Vancouver          | 303.1        | 304.8        | 312.5        | 383.2        |
| Rest of B.C.       | 14.4         | 17.2         | 15.3         | 17.6         |
|                    | <u>444.4</u> | <u>430.6</u> | <u>458.8</u> | <u>550.0</u> |

Source: Canadian Pacific Airlines

TABLE 21

DESTINATION OF PACKAGES FROM YUKON TO ELSEWHERE  
COMBINED TOTAL FOR JANUARY 1-7, MARCH 5-11, JUNE 18-24, 1967

|                   | <u>No.</u> | <u>Percentage</u> |
|-------------------|------------|-------------------|
| To Vancouver      | 173        | 71%               |
| To Alberta        | 38         | 16%               |
| To Rest of B.C.   | 6          | 2%                |
| to Rest of Canada | 17         | 7%                |
| To United States  | 10         | 4%                |

Source: Canadian Pacific Airlines





TABLE 22

DIVISION BETWEEN EXPRESS AND FREIGHT CARGO, FROM EDMONTON AND  
VANCOUVER TO THE YUKON, 1963-1966

|             | 1963           |                | 1964           |                | 1965           |                | 1966           |                |
|-------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| <u>From</u> | <u>Express</u> | <u>Freight</u> | <u>Express</u> | <u>Freight</u> | <u>Express</u> | <u>Freight</u> | <u>Express</u> | <u>Freight</u> |
| Edmonton    | 27%            | 73%            | 36%            | 64%            | 36%            | 64%            | 31%            | 69%            |
| Vancouver   | 19%            | 81%            | 22%            | 78%            | 25%            | 74%            | 32%            | 68%            |

Source: Canadian Pacific Airlines

TABLE 23

AIR CARGO COMMODITIES TO YUKON EX VANCOUVER  
FOR FOUR SELECTED WEEKS, 1967

| <u>Products</u>              | <u>% of Total Packages<br/>per Major Product Type<br/>(averaged for above weeks)</u> | <u>Average Weight<br/>including<br/>Heavy Pieces</u> |
|------------------------------|--|--|
| 1. General Merchandise       | 23%  | 19 lbs.  |
| 2. Machinery, Aircraft Parts | 20%  | 33 lbs.  |
| 3. Newspapers                | 14%  | 22 lbs.  |
| 4. Car, Truck, Tractor Parts | 14%  | 17 lbs.  |
| 5. Films, Video Tapes        | 8%   | 29 lbs.  |
| 6. Unknown                   | 6%   | 17 lbs.  |
| 7. Flowers                   | 2%   | 25 lbs.  |

Source: Canadian Pacific Airlines



TABLE 24

MONTHLY TOTALS OF DIFFERENT TYPES OF CARGO  
ON BOARD CPA PLANE, FLIGHT 21, BOUND FOR WHITEHORSE,  
DEPARTING FROM VANCOUVER - FOR 1966

---

| Month     | No. of Flights<br>per month | Baggage<br>Weights<br>(lb.) | Mail<br>Weights<br>(lb.) | Express<br>Weights<br>(lb.) | Freight<br>Weights<br>(lb.) | Company<br>Mat.<br>(lb.) | Total   |
|-----------|-----------------------------|-----------------------------|--------------------------|-----------------------------|-----------------------------|--------------------------|---------|
| December  | 30 <sup>b</sup> .           | 39,300 <sup>a</sup> .       | 35,400                   | 15,400                      | 59,800                      | 2,800                    | 152,700 |
| November  | 30                          | 42,700                      | 26,000                   | 15,300                      | 50,500                      | 3,100                    | 137,600 |
| October   | 28                          | 50,000                      | 32,300                   | 15,700                      | 47,600                      | 2,600                    | 148,200 |
| September | 28                          | 55,500                      | 22,000                   | 12,900                      | 46,300                      | 2,900                    | 139,600 |
| August    | 27                          | 60,200                      | 20,700                   | 14,000                      | 37,300                      | 2,800                    | 135,000 |
| July      | 26                          | 50,000                      | 20,100                   | 13,900                      | 33,700                      | 800                      | 118,500 |
| June      | 27                          | 57,400                      | 28,700                   | 13,800                      | 39,100                      | 2,200                    | 141,200 |
| May       | 29                          | 58,800                      | 29,500                   | 13,700                      | 46,600                      | 2,000                    | 150,600 |
| April     | 26                          | 50,700                      | 12,600                   | 19,900                      | 38,500                      | 3,500                    | 125,200 |
| March     | 27                          | 45,600                      | 7,400                    | 13,200                      | 38,500                      | 2,000                    | 106,700 |
| February  | 24                          | 42,600                      | 6,200                    | 12,900                      | 33,900                      | 3,200                    | 98,800  |
| January   | 25                          | 54,435                      | 7,100                    | 14,500                      | 33,100                      | 2,200                    | 111,300 |

---

a. Rounded off to the nearest 100 lbs.

b. These flights contain considerable material that is destined for Prince George, Fort St. John or Dawson Creek.

Source: Canadian Pacific Airlines



TABLE 25

WEEKLY DISTRIBUTION OF FREIGHT CARGO CARRIED IN SELECTED WEEKS, 1967  
FROM VANCOUVER TO THE YUKON

|        | February 5-11 |              | February 19-25 |             | June 18-24    |             | October 15-21 |              |
|--------|---------------|--------------|----------------|-------------|---------------|-------------|---------------|--------------|
|        | <u>lbs.</u>   | <u>%</u>     | <u>lbs.</u>    | <u>%</u>    | <u>lbs.</u>   | <u>%</u>    | <u>lbs.</u>   | <u>%</u>     |
| Sun.   | 350           | 3.5          | 980            | 6.1         | 390           | 2.6         | 320           | 2.0          |
| Mon.   | 810           | 5.3          | 540            | 3.4         | 790           | 5.2         | 590           | 3.8          |
| Tues.  | 2,010         | 13.1         | 1,790          | 11.1        | 2,430         | 16.0        | 1,300         | 8.3          |
| Wed.   | 2,200         | 14.3         | 2,760          | 17.1        | 2,360         | 15.6        | 3,100         | 19.8         |
| Thurs. | 2,350         | 15.3         | 3,490          | 21.7        | 3,230         | 21.2        | 2,990         | 19.0         |
| Fri.   | 2,750         | 17.9         | 2,210          | 13.8        | 2,400         | 15.8        | 3,150         | 20.1         |
| Sat.   | 4,890         | 31.7         | 4,290          | 26.7        | 3,560         | 23.4        | 4,260         | 27.2         |
|        | <u>15,400</u> | <u>100.1</u> | <u>16,060</u>  | <u>99.9</u> | <u>15,160</u> | <u>99.8</u> | <u>15,710</u> | <u>100.2</u> |

Source: Canadian Pacific Airlines





Shipments size: Ninety-eight per cent of the shipments and seventy-four per cent of the freight weight is accounted for by shipments of less than 51 lbs.

While the characteristics of the scheduled services can be readily described, an important aspect of aviation service is the operation of unscheduled services by fixed wing and rotating wing aircraft. It is exceedingly difficult to describe these services in quantitative terms. Table 26 shows the percentage increase in aircraft movements at airports reported in the aviation centre statistics. These statistics make the rapidly increasing use of aircraft, especially the helicopter for geological exploration, evident. The averages mask the very great increase which took place at Whitehorse in 1966 (50% increase over 1965) and which has continued since that time, Appendix 3.

Another measure of the volume of air service is the passenger, origin and destination statistics, which indicate that between 1962 and 1966 there was a cumulative increase of 50% in traffic through the Whitehorse airport with one-half of the increase occurring in 1965 and 1966. The years 1967 and 1968 will also show a very substantial increase in air travel into and out of the Yukon territory. Appendix 4 provides statistics of passenger movements.

#### C - TRANSPORTATION RATES, SERVICE AND COMPETITION

The description of commodity flow has already indicated that the significant competition for the water rail route is effectively confined to certain commodities and is particularly significant in the area of Watson Lake. This pattern is accounted for, firstly by rate levels and secondly by service differentials.



TABLE 26

AVERAGE ANNUAL PERCENTAGE INCREASE IN AIRCRAFT MOVEMENTS, 1962-1966

| <u>Airport</u>       | <u>Total Movements<br/>Including Scheduled</u> | <u>Other<br/>Commercial</u> | <u>Helicopters</u> |
|----------------------|--|-----------------------------|--------------------|
| Whitehorse, Y.T.     | 13.96  | 18.82                       | 12.42              |
| Watson Lake, Y.T.    | 3.46   | 3.6                         | 13.88              |
| Teslin, Y.T.         | -7.34  | -3.82                       | 7.52               |
| Yellowknife, N.W.T.  | 13.46  | 26.26                       | 20.68              |
| Hay River, N.W.T.    | 15.52  | 71.88                       | 253.32             |
| Norman Wells, N.W.T. | 21.66  | 19.74                       | 1,082.8            |
| Inuvik, N.W.T.       | 23.8   | 31.5                        | 270.0              |
| Fort St. John, B.C.  | 26.04  | 158.38                      | 17.2               |
| Fort Nelson, B.C.    | 14.14  | 107.3                       | 47.0               |

Source: Statistical Appendix 3



i. Rate levels: The rates for general freight travelling on the three transportation routes to the Yukon are compared in Table 27. While Canadian Freightways has only one rate for more than 90% of the goods sent to the Yukon, and Canadian Pacific Airlines, similarly, has only one air express and one air freight rate, a problem for comparison does arise due to the many different rates existing on the White Pass & Yukon system.

The sample rates that are used, therefore, for the White Pass & Yukon system are a low (item 80) a medium (item 55) and a high level rate (item 25). More specifically, item 80 includes machinery, item 55 is packaged groceries such as vegetables, hardy fruits and household sundries (packaged, dry or in glass), while item 25 includes a large number of goods ranging from adding machines, carpets, furniture and refrigerators to sail boats.

It is only the high level rate which may be considered price competitive to the trucking rate. Table 27 shows that this competitiveness is strongest for the Vancouver to Watson Lake route. Except for the full truck load rate, where trucking is less expensive, the truck rate is on the average only about 20% higher than the rail rate. For the Vancouver to Whitehorse route, however, the truck rate is about 50% higher than the high level White Pass & Yukon rate. This rate difference of 50% is also applicable for Vancouver to Dawson and Mayo.

For the air route, while freight is much less expensive than express, the freight rate for 100 lbs. and 500 lbs. to all four Yukon destinations is about 150% more expensive than the truck rate and about 250% more expensive than the rail rate. Even to Watson Lake the air freight rate is about 200% higher than the rate on the rail route. However, the rates on air shipments becomes more





TABLE 27

COMPARISON OF FREIGHT RATES FOR THE THREE TRANSPORTATION ROUTES  
INTO THE YUKON (per cwt.), 1967

---

A. Vancouver to Watson Lake

| Weight (lbs.)       | White Pass & Yukon |         |         | Truck | Air                  |         |
|---------------------|--------------------|---------|---------|-------|----------------------|---------|
|                     | Item 80            | Item 55 | Item 25 |       | Freight <sup>a</sup> | Express |
| 10                  | ( 5.50             | 5.50    | 6.30    | 7.81  | 6.60                 | 4.30    |
| 50                  | Note ( 5.50        | 5.50    | 6.30    | 7.81  | 11.85                | 21.50   |
| 100                 | ( 5.50             | 5.50    | 6.30    | 7.81  | 19.35                | 43.00   |
| 500                 | 4.30               | 5.10    | 6.30    | 7.60  | 18.50                | 43.00   |
| 1 M                 | 3.96               | 4.51    | 5.71    | 7.29  | *                    | *       |
| 10 M                | 3.51               | 4.16    | 4.96    | 5.95  | *                    | *       |
| 36 M <sup>d</sup> . | ( 2.95             | 3.55    | 4.25    | 4.00  | *                    | *       |
|                     | ( 2.75             | 3.35    | 4.05    |       |                      |         |

B. Vancouver to Whitehorse

|                     |        |      |      |                     |       |       |
|---------------------|--------|------|------|---------------------|-------|-------|
| 10                  | ( 4.50 | 4.50 | 5.50 | 8.25 <sup>a</sup> . | 6.60  | 4.90  |
| 50                  | ( 4.50 | 4.50 | 5.50 | 8.25                | 11.85 | 24.50 |
| 100                 | ( 4.50 | 4.50 | 5.50 | 8.25                | 19.35 | 49.00 |
| 500                 | 3.50   | 4.30 | 5.50 | 8.07                | 18.50 | 49.00 |
| 1 M                 | 3.25   | 3.80 | 5.00 | 7.81                | *     | *     |
| 10 M                | 2.75   | 3.40 | 4.20 | 6.38                | *     | *     |
| 36 M <sup>d</sup> . | ( 2.50 | 3.10 | 3.80 | 5.15                | *     | *     |
|                     | ( 2.30 | 2.90 | 3.60 |                     |       |       |

continued next page



TABLE 27 (cont'd)

COMPARISON OF FREIGHT RATES FOR THE THREE TRANSPORTATION ROUTES  
 INTO THE YUKON (per cwt.), 1967

---

C. Vancouver to Mayo

| Weight (lbs.)       | White Pass & Yukon |         |         | Truck <sup>c</sup> . | Air                    |         |
|---------------------|--------------------|---------|---------|----------------------|------------------------|---------|
|                     | Item 80            | Item 55 | Item 25 |                      | Freight <sup>b</sup> . | Express |
| 10                  | ( 5.00             | 5.80    | 7.00    | 10.83                | 8.35                   | 6.20    |
| 50                  | Note ( 5.00        | 5.80    | 7.00    | 10.83                | 15.35                  | 31.00   |
| 100                 | ( 5.00             | 5.80    | 7.00    | 10.83                | 24.95                  | 62.00   |
| 500                 | 5.00               | 5.80    | 7.00    | 10.32                | 24.10                  | 62.00   |
| 1 M                 | 4.70               | 5.25    | 6.45    | 10.06                | *                      | *       |
| 10 M                | 3.80               | 4.45    | 5.25    | 7.88                 | *                      | *       |
| 36 M <sup>d</sup> . | ( 3.30             | 3.90    | 4.60    | 6.65                 | *                      | *       |
|                     | ( 3.10             | 3.70    | 4.40    |                      |                        |         |

D. Vancouver to Dawson City

|                     |             |      |      |       |       |       |
|---------------------|-------------|------|------|-------|-------|-------|
| 10                  | ( 5.60      | 6.40 | 7.60 | 11.25 | 9.10  | 7.20  |
| 50                  | Note ( 5.60 | 6.40 | 7.60 | 11.25 | 16.85 | 36.00 |
| 100                 | ( 5.60      | 6.40 | 7.60 | 11.25 | 27.75 | 72.00 |
| 500                 | 5.60        | 6.40 | 7.60 | 10.57 | 26.90 | 72.00 |
| 1 M                 | 5.25        | 5.80 | 7.00 | 10.31 | *     | *     |
| 10 M                | 4.25        | 4.90 | 5.70 | 8.13  | *     | *     |
| 36 M <sup>d</sup> . | ( 3.60      | 4.20 | 4.90 | 6.90  | *     | *     |
|                     | ( 3.40      | 4.00 | 4.70 |       |       |       |

Source: Published rates of White Pass and Yukon Route; Canadian Freightways Ltd.; and Canadian Pacific Airlines.

- a. Some commodity rates exist into Whitehorse, eg. vehicle parts, tires, but they only give lower rates than those shown for small size shipments. Minimum rate is class rate at 36,000 lbs. for all other movements.
- b. In order to have the rates on an equal service basis, the air freight includes a charge for pickup and delivery, a minimum of \$1.35, or 50¢ per 100 lbs.
- c. The truck rates to Mayo and Dawson are made up of the Canadian Freightways rate to Whitehorse, plus an additional charge for further shipment by another company.

Continued on next page



## Footnotes to Table 27 - (cont'd)

- d. If a shipper loads a container to 24,000 lbs. or pays the difference in weight deficiency, 20¢ per 100 lbs. discount is given by the White Pass & Yukon Railway.
- \* A single air shipment of this size is extremely unlikely due to plane limitations. (Note: a company shipment of 2 crates is in the case of air cargo regarded as two shipments.)

Note: The minimum charge for shipments of 100 lbs. or less is laid down in Rule 115 of Tariff G.F.O. #800; C.T.L., (F) #87. White Pass & Yukon Railway.





TABLE 27A

A COMPARISON OF TRUCK FREIGHT RATES BETWEEN  
VANCOUVER, EDMONTON AND THE YUKON TERRITORY

|                           |                     |                    |                   |               |
|---------------------------|---------------------|--------------------|-------------------|---------------|
| <u>Minimum Shipments</u>  |                     |                    |                   |               |
| 0-499 lbs.                | <u>Vancouver</u>    |                    | <u>Edmonton</u>   |               |
| Whitehorse, Y.T.          | \$ 21.90*           |                    | \$ 7.25           |               |
| <u>L.T.L. Shipments</u>   |                     |                    |                   |               |
| 500 to 36,000 lbs.        |                     |                    |                   |               |
| Minimum Weights           | <u>5,000</u>        | <u>20,000</u>      | <u>5,000</u>      | <u>20,000</u> |
| Whitehorse, Y.T. cents    | 695                 | 543                | 550               | 485           |
| per                       |                     |                    |                   |               |
| 100 lbs.                  |                     |                    |                   |               |
| Watson Lake, Y.T.         | 643                 | 476                | 480               | 375           |
| <u>T.L. Shipment</u>      |                     |                    |                   |               |
| 36,000 lbs.               | <u>Vancouver</u>    |                    | <u>Edmonton</u>   |               |
| Whitehorse, Y.T. cents    | 515                 |                    | subject           |               |
| per                       |                     |                    | to                |               |
| 100 lbs.                  |                     |                    | negotiation       |               |
| Watson Lake, Y.T.         | 400                 |                    |                   |               |
| <u>Highway Mileage</u>    |                     |                    |                   |               |
|                           | <u>Dawson Creek</u> | <u>Watson Lake</u> | <u>Whitehorse</u> |               |
| Vancouver                 | 740                 | 1,375              | 1,658             |               |
| Edmonton                  | 374                 | 1,009              | 1,292             |               |
| <u>Tariff References</u>  |                     |                    |                   |               |
| Canadian Freightways Ltd. | #8                  | items              | 220 and 930       |               |
| as of July 1st, 1968      | #9                  | items              | 365 and 325       |               |

\* Note increase in rate for minimum shipments (Table 27) Vancouver to Whitehorse from \$8.25 to \$21.90; Weight of minimum shipments increased from 100 lbs. to 499 lbs. Applies to Class 100, 85 and 70 merchandise.



competitive as the shipments size decreases; where a high cost per pound has to be paid, air freight may even offer a lower rate for small sized packages.

A further comparison of rates can be made by relating the revenue per ton a mile for each route, Table 28. The figures show that the truck rate per mile is almost the same as that of the White Pass & Yukon Rail route. This is even though the latter includes an 850 nautical mile (980 land miles) ocean haul.

As a comparison, average revenue per ton mile of domestic freight in the United States for 1964 was 1.3¢ for rail, 6.5¢ for motor carriers, 0.3¢ for inland waterways and 21.7¢ for domestic trunk airlines<sup>7</sup>.

Further comparisons of freight rates are beneficial. Table 29 shows the average revenue per ton mile for selected commodities on the White Pass & Yukon railway and for all Canadian railways. In spite of the long total haul, 1090 miles, and the long sea haul, 980 miles, the rates on the White Pass & Yukon route in some cases are substantially higher than the Canadian average. However, the most significant feature is the substantial variation in the level of rates by commodities.

The minimum ton mile rate on general merchandise moving north is well above the average Canadian revenue from class-rated traffic. On the other hand the rates on southbound mine products are very similar to the non-competitive commodity rates for Canadian railroads. Since the White Pass & Yukon is faced with special characteristics, especially low total tonnage, significant variations from the Canadian rail average are to be expected; however, such



TABLE 28

REVENUE PER TON-MILE RANGES FOR THE THREE TRANSPORTATION STREAMS  
FROM VANCOUVER INTO THE YUKON, 1967.

| Transport Stream | Origin and Destination           | Distance (in miles) | Rate Range      | Revenue per ton-mile Range |
|------------------|----------------------------------|---------------------|-----------------|----------------------------|
| Truck            | Van. to W. Lake                  | 1470                | \$4.00 - 7.81   | 5.4¢ - 10.6¢               |
| W.P.& Y.         | Van. to W. Lake                  | 1370                | \$2.95 - 6.30   | 4.4¢ - 9.2¢                |
| Truck            | Van. to Whitehorse               | 1750                | \$5.15 - 8.23   | 5.9¢ - 9.4¢                |
| W.P.& Y.         | Van. to Whitehorse               | 1090                | \$2.50 - 5.50   | 4.6¢ - 10.1¢               |
| Air              | Van to W. Lake<br>and Whitehorse | 1264                | \$19.35 - 18.50 | 30.6¢ - 29.3¢              |

Source: Table 27





TABLE 29A  
AVERAGE REVENUE PER TON/MILE  
ALL CANADIAN RAILWAYS

| <u>Category of rate</u>   | <u>1961</u> | <u>1962</u> | <u>1963</u> | <u>1964</u> | <u>1965</u> |
|---------------------------|-------------|-------------|-------------|-------------|-------------|
| Normal rated traffic      |             |             |             |             |             |
| Class                     | 4.28¢       | 4.34¢       | 3.95¢       | 4.03¢       | 3.95¢       |
| Commodity                 | 1.73        | 1.75        | 1.57        | 1.50        | 1.44        |
| Competitive rated traffic |             |             |             |             |             |
| Competitive               | 2.51        | 2.48        | 2.55        | 2.50        | 2.61        |
| Agreed                    | 2.21        | 2.12        | 1.93        | 1.87        | 1.84        |

Source: Waybill Analysis, 1965; Board of Transport Commissioners, Ottawa, 1966

TABLE 29B

WHITE PASS AND YUKON RAILWAY  
Revenue per ton/mile 1967 for selected South and Northbound movements  
using highest minimum weights and lowest rates

| <u>Commodity</u>                                | <u>Weight</u>  | Revenue per<br>ton/mile (¢) |
|---|----------------|-----------------------------|
| Asbestos  | Container load | 1.54 <sup>a</sup> .         |
| Copper & lead-zinc concentrates                 | Container load | 1.45                        |
| Bagged Cement <sup>b</sup> .                    | 100,000 lbs.   | 2.80                        |
| General Merchandise <sup>b</sup> .<br>(Item 25) | 36,000 lbs.    | 7.00                        |

a. For volumes up to 80,000 tons per year the rate Whitehorse - Vancouver is \$17.00 per ton.

b. Movement Vancouver - Whitehorse, distance, 1,090 statute miles.

Source: White Pass and Yukon Railway Freight Tariffs.



variation between rates do not appear to be rationally explained in cost differences. Such variations could not exist if it were not for the effective protection from competition which the White Pass & Yukon experiences because of the high cost of trucking service via the circuitous Alaska Highway. Further protection from competition on northbound movements is by long-term contracts entered into by mining companies to ship inbound via the rail route in return for lower rates than those which would otherwise have applied on outbound freight.

The effect of the rate differentials is that the northbound traffic, although much less in volume than the southbound traffic, is by far the most important source of revenue, Table 30.

Since all the freight is containerized and this may be done by the shipper, there is little scope for variation in costs. A pre-loaded container of 36,000 lbs. of canned goods pays \$918; a southbound pre-loaded container of asbestos weighing 40,000 lbs. pay \$340. The tariffs are evidently based on a more severe application of differential pricing than is found elsewhere in Canada.

In fact, the majority of northbound containers contain significantly less freight than those that are southbound; it is estimated that 80% of the northbound loaded containers have net loads of 12 tons or less and approximately 80% of southbound containers have net loads of from 22 to 24 tons. In spite of this there is a surplus of containers moving north.<sup>8</sup>

ii. Service levels: The distribution strategy that causes firms to select certain modes of transport involves more than just the published cost of transport. A recent survey was conducted by "Traffic Management" magazine in the United States "to determine what factors led to the selection of a carrier."<sup>9</sup> They concluded that time in transit was the most important factor



TABLE 30

WHITE PASS & YUKON RAILWAY FREIGHT REVENUE  
(\$000)

|                                      | <u>1962</u> | <u>1963</u> | <u>1964</u> | <u>1965</u> | <u>1966</u> | <u>1967</u> <sup>b.</sup> |
|--------------------------------------|-------------|-------------|-------------|-------------|-------------|---------------------------|
| General<br>merchandise <sup>a.</sup> | 1,370.0     | 1,091.6     | 1,060.5     | 1,052.0     | 1,508.3     | 1,522.0                   |
| Gas and oil <sup>a.</sup>            | 278.5       | 333.3       | 249.6       | 313.3       | 346.6       | 364.7                     |
| Asbestos <sup>a.</sup>               | 436.3       | 479.6       | 490.4       | 471.2       | 637.0       | 681.9                     |
| Ore concentrate <sup>a.</sup>        | 189.0       | 186.1       | 230.4       | 206.6       | 172.5       | 287.5                     |
| TOTAL                                | 2,273.8     | 2,090.6     | 2,030.9     | 2,043.1     | 2,664.4     | 2,856.1 <sup>c.</sup>     |
| Passengers                           | 240.5       | 316.8       | 307.2       | 311.9       | 436.2       | 412.9                     |

a. Rounded to the nearest hundred

b. Preliminary figures

c. The rail freight revenue is that portion of the total freight revenue allocated to the rail movements.

Source: White Pass & Yukon, Rail Traffic Statements.





followed by on-time performance, shipment tracing and in the fourth place freight charges. The advantages that arise to the user of different transport systems due to shorter time in transit occur mainly in six categories. These are interest on capital invested in shipments en route; storage and warehousing costs; size of inventories needed; obsolescence; flexibility in adapting to changing marketing demands; and, lastly, better service and greater customer satisfaction. The significance of these factors varies, of course, for the various transport users and the different products transported.

The number of days that freight is in transit for the three transportation routes from Vancouver into the Yukon is shown in Table 31. In each case, in-transit time is indicated as a range of days. The minimum number of days is the least time taken from the pick-up at origin until delivery at destination. This occurs when the optimum day is chosen for the pick-up of the shipment. The maximum number of days occurs when the day furthest from a departure date is chosen as day one. The time in transit is then computed from this day until the shipment reaches its destination.

The range of in-transit times offered by the White Pass & Yukon is unusually wide. The minimum time is calculated on the basis of a perishable commodity which can be delivered to the railway on Thursday, the day before the "Frank H. Brown" sails and which is the first freight to be transported from Skagway to Whitehorse. Some of this freight would be available for delivery late on Monday. Shipments of non-perishables for points beyond Whitehorse are normally moved from Skagway immediately after the perishables so that freight to these points can be consolidated. Consequently, the minimum in-transit time to Watson Lake and Mayo





TABLE 31

TIME IN-TRANSIT BY MODE, VANCOUVER TO YUKON POINTS,  
1967

| Transportation<br>Route | Time<br>Range | D e s t i n a t i o n |             |      |
|-------------------------|---------------|-----------------------|-------------|------|
|                         |               | Whitehorse            | Watson Lake | Mayo |
| White Pass & Yukon:     | Min.          | 5                     | 7           | 7    |
|                         | Max.          | 27                    | 27          | 27   |
| Trucking:               | Min.          | 5                     | 5           | 8    |
|                         | Max.          | 7                     | 10          | 10   |
| Air:                    | Min.          | 1                     | 1           | 1    |



(plus one day for earlier delivery in Vancouver) applies to other goods as well as the perishables. The maximum in-transit time is calculated on the basis of a shipment just missing one sailing and having to wait for ten days at Skagway prior to moving by rail to Whitehorse, (as might occur in summer). Obviously, the majority of non-perishable freight falls between these two extremes; the majority of freight has an in-transit time (as defined) of less than two weeks. Because of the infrequent boat service ordering and scheduling is tied to the bi-monthly service.

While the infrequent service causes relatively large orders to be placed and, therefore, large inventories to be held, the slow rate of arrival of shipments from Skagway prevents a radical peaking in shipment arrivals. This is desired by some receivers who lack storage space, for example, Tourist Services. However, with the exception of perishables the inability to obtain specific containers in a particular sequence does create inventory and service problems.

Trucking service is also significantly affected by the frequency of trips. Third day delivery of goods shipped from Edmonton to Whitehorse is quite reliable. However, from Vancouver the service is provided by trans-shipment at Dawson Creek. Daily service is maintained from Vancouver to Dawson Creek, but only a twice-weekly service is provided from that community to Whitehorse and once-weekly from Dawson Creek to Watson Lake. Service to Mayo is further affected by the infrequent service from Whitehorse; the service ties in more conveniently with the White Pass & Yukon rail schedule than with trucking movements. The result is that within the area north of Whitehorse, the service of the water/rail route can be just as good as the trucking route if the best day for shipment



is selected. Thus, north from Watson Lake, not only does the price differential improve in favour of the White Pass & Yukon but the rail service becomes more competitive.

The air freight service could achieve an effective minimum of one day even to Mayo on a summer schedule. Freight given to C.P.A. one evening would be available for distribution the next afternoon or evening. A maximum time during the summer schedule is mainly dependent on freight being bumped an occurrence all too common currently with the D.C.6.B. It is hoped that the incidence will be reduced substantially when the new Boeing 737 is brought into service.

The effect of the transportation services available to consignees in Whitehorse is to cause much higher total distribution costs than is experienced in British Columbia. A substantial quantity of stock items shipped via the White Pass & Yukon have a total lead time, from ordering the item to its receipt, well over twice the lead time in a town such as Prince George. Consequently, average inventories may be 25% or more above the level which would be expected in British Columbia, but service levels are still lower. Higher inventory levels imply higher cost for heating and labour as well as the additional capital and obsolescence costs of the inventory itself.

Unfortunately, insufficient information is normally available even from one firm to enable an estimate of the cost which can rightfully be placed on the service provided by a transportation company.

iii. Competition: The study of transportation rates and service explains the dominant position held by the White Pass & Yukon rail route. With the





exception of service-orientated items which can be shipped from Edmonton, for example - meats, or shipments for which service is critical and this need cannot be met by the rail route because of the schedule, the White Pass & Yukon has an effective monopoly within the Yukon territory. It is only along the southern part of the Alaska Highway that the position of the trucking industry is sufficiently strong to give real competition.

The best example of this competition is afforded by the transportation policy of Canada Tungsten Mining Corporation Limited actually located in the North West Territories but served by Watson Lake. That Company has a contract with the White Pass & Yukon to haul in fuel oil with a back haul of copper concentrates and with Canadian Freightways to haul in general supplies and back haul tungsten. The truck haul is preferred for tungsten, which has a value of about \$2 per lb., because the time-saving afforded by that mode is worth more than the somewhat higher freight rate charged, compared with that which would apply via the rail route. All haulage from Watson Lake to the Mine is performed by a separate contractor, K and J Trucking.

Some of the requirements of Cassiar Asbestos in northern British Columbia are also met by trucking via Loiselle Transport, but the majority of the asbestos is shipped via the White Pass & Yukon route. Further north along the Alaska Highway, the dependence of the communities as well as the mines on the rail route is almost complete, with the exception of service items as noted above.

The cost advantage of the White Pass & Yukon in shipping out low-value ores from the majority of the Yukon results in the practice of firm contracts being signed between the Mining companies and the railway. These contracts are



confidential; they are not filed with the Canadian Transport Commission nor are they published in any way. It is understood that some of the contracts are long term, perhaps as long as, or longer than, ten years, and may tie the companies to shipping in-bound via the White Pass & Yukon. Confidential contracts also exist for trucking firms, for example, the contract between Canadian Freightways and Canada Tungsten. However, the latter is without term and can be ended by either party upon notice. This does not seem to be usual in the contracts of the White Pass & Yukon; it does not apply to the Canada Tungsten and White Pass & Yukon contract on fuel oil and copper concentrates.

While a study of competition is bound to concentrate on the position of the White Pass & Yukon, it is necessary to consider the position of other firms and other modes of transport.

It appears that the trucking industry is competitive. The dominance of two carriers on the Alaska Highway results from the small size of the market; these firms are aware of the possible inroads which could be made by small carriers into particular services, for example, meat has been hauled in truck loads by a small carrier, Tamac. Motor carriers, in effect, are not regulated so that no artificial protection is provided from that source.

For airline service the policy of the Canadian Transport Commission provides C.P.A. with an effective monopoly on the main channel into the Yukon from the south. Competition from the circuitous route, Seattle-Juneau-Whitehorse, is not significant. This monopoly exists because of the Canadian Transport Commission policy and it must be in the wisdom of that Commission that it is



held desirable to allow a single carrier to operate from a competitive base (Vancouver) via two quite different routes (via Prince George, and via Prince Rupert) into Whitehorse rather than allow one carrier to operate on one route and a different carrier on the other. It would seem that the only significant cost implication of a policy allowing competition, if a carrier such as P.W.A.\* were allowed to operate one of the routes, would be the possible duplication of terminal facilities at Whitehorse.

The existence of what is regarded as an effective monopoly by the White Pass & Yukon for general freight and mine products in much of the Yukon, and C.P.A. for inter-regional passenger travel to and from the rest of Canada, naturally gives rise to some vociferous complaints from Yukon residents. These complaints are real and they do reflect strongly held views; how much significance can be attached to them is difficult to determine, and how they should be weighed is a matter for Government policy. Some attempt should be made here to place the complaints within a rational framework.

Firstly, complaints are always registered against a company which enjoys a monopolistic position even though the company may be providing the most efficient service commensurate with reasonable profitability. This is a problem which can only be weighed as a policy decision. Is some competition and possibly the higher cost associated with it worth the public value of competition?

Secondly, complaints may be levelled against the level of service provided or the rates charged by a monopolist. It then becomes a question of whether the

---

\* Pacific Western Airlines







monopolist is providing the service in an efficient manner and earning a reasonable return. Because of the special impact of transportation on the economy it is normal for Government to accept the responsibility, at least in cases of monopoly, of investigating these questions. These matters can only be decided on the basis of the cost and profitability of alternate performance levels. However, in the case of the Yukon, questions about the reasonableness of the White Pass & Yukon tariff and confidential contracts are not answered. The need of C.P.A. to increase its fares to the Yukon in 1968 has not been substantiated to public satisfaction.

It is not suggested that the latter issues can be dealt with here, but it is desirable to examine how this situation arises and what action might be taken to remedy it. Consequently, the transportation regulatory environment affecting the Yukon will be described in section 3, as a part of the description of Government policy in relation to transportation development.



## SECTION 3

### FRAMEWORK FOR TRANSPORTATION DEVELOPMENT

#### A - GOVERNMENT POLICY

Two aspects of Government policy have a significant influence on transportation development; they are the regulations placed on firms providing transportation services and the policy or policies which guide Government investment in the transportation infrastructure.

##### 1. Regulatory policies

###### i. White Pass & Yukon Railway:

Because it serves the port of Skagway the White Pass & Yukon is engaged in international movements of freight, however, this does not appear to create any special difficulties. The Company is one of the few operations which has exemption from the Jones Act so that freight originating in the United States and destined for the port of Skagway can be shipped on the "Frank H. Brown".

Of more significance than the international nature of the movement is the Canadian regulatory position. Prior to the National Transportation Act 1967, the White Pass and Yukon enjoyed certain exemptions from rate regulation, Railway Act, section 336.4.E. It is also possible that because of the unique international and inter-modal nature of the service the jurisdiction of the Board of Transport Commissioners over rates has been in some doubt. For example, enquiries of the Board about rates



by the Yukon Development & Research Institute brought the response that the Board did not have jurisdiction<sup>10</sup>.

Certainly, there appear to have been no rate cases since the days of the gold rush; this, in itself, is surprising in an area where there is so much concern about the level of freight rates. If the lack of cases has arisen because of uncertainty of jurisdiction this is certainly dispelled by the National Transportation Act. The broad powers under that act (sections 15 and 16) as well as specific sections dealing with the Railway Act (sections 44, 47 and 53) appear to provide adequate powers of regulatory control. It seems only through the exercise of these powers that the reasonableness of the general rate level and the rate structure can be judged.

ii. Trucking:

The trucking industry in the Yukon is not really regulated. Entry of firms can be controlled through restriction of licenses issued; the regulations governing the granting of public service vehicle licenses are given in appendix 5. In effect, once a company has a license it can obtain any number, and there are very few instances where a license has been declined to a new carrier. Licenses may either be for public service vehicles - open licenses - or for restricted service vehicles - in effect contract carriage. Rates should be filed but there is no policing of rates and it is doubtful that even filed rates are up to date.

Since the majority of common carrier trucking involves inter-provincial transport, the attitude of the regulatory authorities in



British Columbia and Alberta is important. While there is entry control, particularly by British Columbia, neither Province is concerned with the control of inter-provincial rates. To obtain a contract license (limited freight vehicle license in British Columbia) it is not necessary to disclose the terms of a contract on an inter-provincial haul.

The limited application of regulation and the financial structure of the trucking industry ensure ease of entry into the industry and there appears to be no danger of inefficiency arising because of monopoly or even oligopoly controls.

iii. Aviation:

The economic regulation of aviation services, scheduled and charter, has been performed by the Air Transport Board and since 1967 by the Air Transport Committee of the Canadian Transport Commission. Because of the small size of charter firms and the nature of exploration and survey work using charter aircraft, the Air Transport Board policy controlling charter services has not given rise to any evident problems.

However, the Board policies do appear more important to the level of competition experienced by scheduled carriers and, therefore, the level of service provided. Two aspects of the scheduled services provided by Canadian Pacific Airlines are open to question. First, is it necessary for C.P.A. to hold a monopoly since they are serving Whitehorse via two routes. The only additional point at which Pacific Western Airlines would have to provide terminal facilities were it to





operate from Vancouver to Whitehorse via Prince Rupert would be at Whitehorse. This "duplication" of facilities at Whitehorse might not be too high a price to pay for competition. The analogy with C.P.A.'s position and arguments on a trans-continental route is obvious.

Secondly, C.P.A. applied in April 1968 for a 10% increase in fares on all domestic routes. They also applied for a youth standby fare and group travel fares; the latter is not to apply to the B.C. - Yukon services. The granting of a nationwide percentage increase in fares within a region in which a carrier has a monopoly can be expected to lead to a public reaction. Canada has all too much experience with this.

The equitability of an airline applying an across-the-board rate increase when enjoying a regulated monopoly is as much open to doubt as when the same action is taken by a railway.

The Whitehorse route (that is distinct from the B.C. - Yukon operations in total) does have some characteristics which might lead to high and increasing costs. The most significant of these would seem to be the relatively short stage link of the route via Prince George. However, the route has several characteristics which should make it profitable, and increasingly so. The most important of these is the high utilization apparently achieved both in the movement of passengers and freight. The weight problem on the route via Prince George is such that it is common to re-fuel at all stops except Watson Lake, an occurrence that contributes to the poor service level. The introduction of



the more direct service via Prince Rupert in 1967 has improved the service by providing an alternate to the "milk run" but does little to dispel doubts existing about the profitability of the route and, therefore, the need for the increase in rates.

It would seem to be in the interest of C.P.A. if the increase is necessary on this route, and to fulfil the function of the Canadian Transport Commission from the perspective of the Yukon residents, if the Air Transport Committee were to carry out an examination of the costs of the Yukon service specifically, or let it be known if this has been done already.

The Yukon route has come to be regarded as one which has had terrible service but which is still highly profitable. Given the monopoly position of the Company and the traffic conditions it appears to be a reasonable expectation. Only the Air Transport Committee is empowered to look into all of the matters necessary to determine the accuracy of this viewpoint and the justification for the fare increase.

It is also interesting to note that for an area to which access by land is slow and almost hazardous, but which can be rewarding for the tourist, promotional group fares have not been introduced.

## 2. Investment Policy

It is extremely difficult to determine precisely which level of Government and which Government Department is, in fact, supporting public investment in the Yukon because of financial transfers from one account to another.



Without knowing the specific amount spent under the various cost-sharing programs it is not possible to re-allocate the amounts shown in Government accounts. Therefore, the expenditures are shown as reported from published accounts in Appendix 6.

The Government investment policy in transportation can be divided into two parts, road policy and airport policy.

i. Road Policy:

A substantial road development program has been authorized by the Department of Indian Affairs and Northern Development. There are four basic components to the northern roads program<sup>11</sup>.

- Tote trails are low standard roads designed to provide access to a resource project which is in the exploration or development stage. Winter roads are included in this category. Tote trail contributions are financed and administered by the territorial government which may pay up to 50% of the cost of construction but not exceeding \$20,000.
- Initial access roads are low standard roads designed to provide access to a resource project which is in the exploration or development stage. This category, however, is intended for cases where, because of the length, terrain or difficulty of construction, total cost is such that the maximum permissible contribution under the tote road category would be insufficient. The amount of Federal assistance will not exceed 50% of the actual road cost,





or 5% of the Company's expenditure on exploration or development of the project. The maximum yearly contribution is limited to \$100,000 if the project is exploratory in nature, and \$500,000 if the project is primarily development. The location of the initial access road must be approved by the Minister of Indian Affairs and Northern Development.

- Permanent access roads are low standard roads designed to provide permanent access from an existing permanent road to a resource project which has been brought to the pre-production state. The Department of Indian Affairs and Northern Development may authorize a Federal contribution of up to two-thirds of the cost of construction, but not exceeding 15% of the actual capital invested by the Company prior to the commencement of commercial production or exploitation, or \$40,000 per mile, whichever is the lesser. The location of the permanent access roads must be approved by the Minister of Indian Affairs and Northern Development.
- Area development roads are to lead into resource potential areas and are planned to fit in with and extend the overall network plan. The Federal Government pays the cost of construction and shares the maintenance cost with the territorial government on the basis of a Federal contribution of 85%. Within the Yukon the area development roads are being planned on a basis of "loop concept" to place every point within the territory within 200 miles of a road. While it is rare to find criticism of the road development program



two observations may be made. Firstly, it appears that an excessive amount of work in the allocation of funds to particular projects is carried out by the Department of Indian Affairs and Northern Development outside of the Yukon. Not only does the Department establish the size of the budget, for example, for maintenance of development roads, but they also select projects. Both tasks and the transmittal of the information to the territorial department of engineering are accomplished through the publication of the estimates of the Department of Indian Affairs and Northern Development. Since these funds, in practice, are re-allocated by the territory it seems futile to establish priorities from outside of Whitehorse. Amongst other things the existing system creates an undesirable image for territorial employees of distant civil servants allocating funds between projects with which they are not familiar. One particular project whose evaluation by the Department should be examined and which should be re-evaluated in the light of the experience during the year 1967-68 is the tramway/ferry system across the Yukon River at Dawson City.

The second question which arises is whether excessive reliance is being placed in road construction on the hope that development will subsequently take place. To sink money in a fixed place may make less sense than providing more flexible transportation as afforded, for example, by aviation. The argument that a minimum road system is needed can only be debated in the matter of extent. However, perhaps insufficient recognition is generally given to the ability to construct roads quickly once resources are established. For example, the Watson Lake to Canada Tungsten



Mine road was built in two years by relying on aerial reconnaissance and by constructing the road from both ends. This was done by flying in a stripped D-4 tractor by Otter, assembling and making an air-strip to fly in the necessary equipment for full work to proceed from the remote location.

Government policy also affects the cost of trucking service through the regulations and charges which are imposed on vehicle operations. While the trucking industry will always complain about certain aspects of motor vehicle regulations it is generally only because of their complaints that the regulations are updated.

Carriers hauling in both British Columbia and the Yukon face two types of problem. The first concerns vehicle weight limits; for example, in British Columbia the maximum gross vehicle weight for the trucks operated by the Highway Division, Cassiar-United Keno Hill, is 75,300 lbs. However, the vehicles are normally operated at between 83,000 and 86,000 lbs. and pay an overweight fee to take advantage of the maximum gross vehicle weight in the Yukon of up to 95,000 lbs. The second problem concerns taxes. There is no licence reciprocity and the fuel tax (11¢ per gallon in the Yukon and 15¢ per gallon in British Columbia) is paid in British Columbia on the basis of use and in the Yukon on the basis of purchase. The result is that fuel purchased in Whitehorse but used in British Columbia is double taxed. It is expected that the latter situation may be corrected shortly by the Territorial Government. Efforts should be made to obtain reciprocity agreements between the Yukon and the Provinces.

The differences in political controls, together with differences in road conditions and equipment, result in significantly different truck





haulage costs between Whitehorse and Cassiar and Whitehorse and United Keno Hill Mine. The average vehicle costs were 72.08¢ and 56.64¢ per vehicle mile respectively in 1967; the total cost per ton mile for the haul was 6.3 cents from Cassiar and 4.7 cents from United Keno Hill.

ii. Airport Policy:

The absence of an effective aviation policy is the main deficiency of government policy. Both the Department of Transport and the Department of Indian Affairs and Northern Development have applicable policies.<sup>12</sup> However, the Department of Transport has not financed the construction of an air-strip in the Yukon since 1956 and the Department of Indian Affairs and Northern Development's policy statement recommending an annual average expenditure of about \$80,000 on exploratory aerodromes has not resulted in noticeable activity.

An explanation for the failure of the Department of Transport Policy is that airports in the Yukon must compete for funds nationally. The funds are generally inadequate to provide for the level of need within the Yukon. Further this "competition" is associated with a detailed evaluation process which together with "application time" can cause a working season to be missed. An application for assistance on an airport at Ross River dated October 10, 1966 had still not been settled in July 1967.<sup>13</sup> The airport was finally constructed with territorial funds. Nevertheless, between 1956 and 1967 the expenditures of the Department of Transport on air services in the Yukon (civil aviation, telecommunications and





meteorological branches) has amounted to 21.7 million dollars of which almost two thirds was on operations and maintenance<sup>14</sup>.

The failure of the Department of Indian Affairs and Northern Development program appears to rest in part, at least, in the requirement that the private interests being served pay half of the cost of an airport up to a full cost of \$40,000 and then all of the excess. It is not possible to identify any expenditures by the Department in the annual accounts.\*

It seems to be much easier to invest several million dollars in a road in the hope that traffic will develop than to invest several thousands of dollars in an airstrip under the same expectations. This is in spite of the fact that aviation is playing an increasing role in exploration. Airstrips provide a base from which helicopters can serve substantial areas. Because of the importance of helicopter services in exploration, appendix 7 is provided to give some cost data.

In general, while attempting to investigate the role of Government policy and investment in transportation in the Yukon, a significant lack of knowledge about the decision-making process was evident both on the part of civil servants and persons within industry dealing with Federal departments. There appeared to be a lack of familiarity with the persons making decisions and the way they go about making those decisions. Too often the attitude which seemed to have developed was that "the unseen hand" will tell us in due course.

\* The Department of Indian Affairs and Northern Development states that \$24,500 has been spent on Resource Airports in the period 1958-68.



The concentration of decision-making outside of the Yukon, particularly in the Department of Indian Affairs and Northern Development, not only has undesirable repercussions on personal attitudes but it is bound to affect the quality and nature of decisions made inside and outside of the Yukon. Greater responsibility for the allocation of a budget between projects might well rest with the territorial government.

"The allocation of powers and spending authority among such Government units is an extremely important aspect of the institutional framework. Different arrangements lead to different outcomes, affecting not merely material benefits but also other values resulting from the alternatives we choose" <sup>15</sup>.

The importance of Government policy in the development of transportation in the north has resulted in a large number of studies being carried out. The reports provide an important departure point for the evaluation of future investment alternatives.

#### B - PREVIOUS REPORTS

Proposals to establish routes to and through Alaska date back to the middle of the nineteenth century. However, while the early proposals indicate the interest which had been aroused in northern transportation routes, none of them had any real significance. The first significant study of a route to Alaska was the report of the Commission to Study the Proposed Highway to Alaska which reported in 1933<sup>16</sup>. The Commission recommended the construction of a road from Hazelton, B.C., north behind the coast range to Whitehorse. However, the report was very superficial and the matter rested officially for several years.



In 1938 the British Columbia-Yukon-Alaska Highway Commission was established.<sup>17</sup> The report, made public in 1942, considered alternate highway routes. The United States favoured the coastal route to Alaska but the Canadian Commission favoured a route via the Rocky Mountain Trench. Although in a less favoured region for resource development the cost of construction and maintenance of a road in the Trench would be much less than for a road close to the coast.

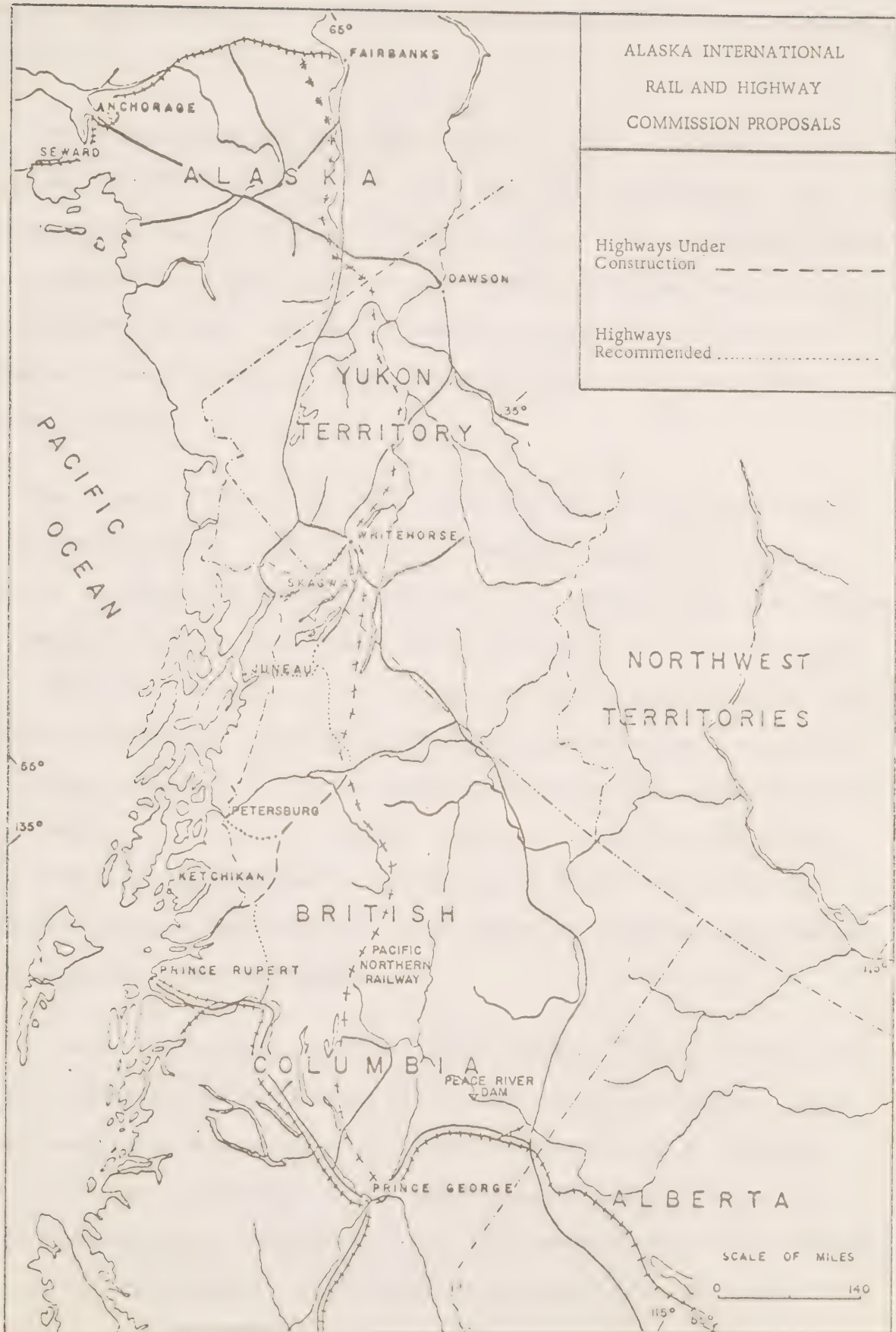
However, the construction of the Alaska Highway was finally undertaken because of the Japanese threat to United States sovereignty in the North Pacific. The highway, 1,525 miles long, was consequently constructed with the utmost urgency, following a chain of airports which Canada had constructed to the Yukon and Alaska. The road does not follow any route which had been recommended by the earlier studies, and is only close to mineralized areas north of Watson Lake. Before the end of the war another study was under way - the North Pacific Planning Project.<sup>18</sup> This report provides the first serious description of northern resources and "foresaw" transport development more than proposing specific projects. The report anticipated the construction of a railway to Alaska.

The first report which combined a detailed inventory of the resource base, carried out engineering surveys and gave substantial attention to transportation economics was the Alaska International Rail & Highway Commission.<sup>19</sup> The Commission recommended the construction of a railway and a highway network, Figure 3. However, the rail recommendation was based on an erroneous assumption that the Wenner Gren proposal for the construction of the Pacific Northern Railway into the Yukon would go ahead.<sup>20</sup> Further the railway was expected to require a subsidy to cover the capital cost at least, a subsidy which could be





FIGURE 3





used more advantageously to reduce the freight rates via the coastal shipping route.

The recommendation for the construction of a road network estimated to cost over \$240,000,000 at that time, also left much to be desired. The general methodology followed in the benefit-cost analysis and the application of the analysis only to the complete road program, detracted from the value of the recommendation. The lack of Canadian participation in the policy formation procedure must also detract from the value of the report from a Canadian viewpoint.

Some aspects of the Commission's recommendations have been re-examined by subsequent studies. For example, the Stanford Research Institute has evaluated the paving of the Alaska Highway. The Travacon report has examined the specific issue of transportation costs associated with a rail extension beyond Whitehorse and the cost of transportation from Whitehorse to the coast at Skagway and Haynes. However, no further consideration has been given to the broader concept of the completion of a road behind the coastal range with branch roads to the coast, for example to Juneau. Because of the support which exists in British Columbia for this concept,<sup>21</sup> and the benefit which it would bring directly and indirectly to the Yukon, it should be re-considered in the light of current developments.

As noted, the Stanford Research Institute and the Travacon reports both had specific objectives and because of this used specific criteria. These reports need to be re-examined in the light of broader terms of reference. This is particularly important in the light of resource developments which are not incorporated within the reports; this is especially true of the Stanford Research Institute report. The re-examination should take cognizance of the



regional, economic and social development objectives implicit in the area development road program. It should recognize, also, the extent of financial obligation which is accepted by the Federal Government in the operation and even construction of railways in other parts of Canada. In particular, the agreement between the Department of Transport, the Canadian National Railway, Pine Point Mines Ltd., and the Consolidated Mining and Smelting Company of Canada Limited, should be used as a model reflecting the extent of financial responsibility which the Federal Government may be prepared to accept. Until the cost of transportation to tidewater can be reduced significantly no major change will take place in the Yukon economy.\*

A notable absence in the studies is consideration of transport investment other than in the infrastructure through roads or railways. Both the studies and, as noted previously, investment policies have given little attention to airport investment. Also, little attention appears to have been given to port development, a critical issue within this region because of the limited number of port sites, the general limit on space at these sites and the fact that the sites lie within the United States.

The location of the ports within the United States does raise some issues associated with the applicability of the Jones Act; however, exemptions from this Act have been granted in the past. The issue here would seem to be that the Federal Government must attempt to ensure that exemptions will be made in the future when necessary. Other difficulties, associated with customs procedures for example, arise occasionally but it has been very difficult to

---

\* Asbestos from Clinton Creek to Vancouver (1,500 miles) costs about \$39.00 per ton (rate plus trucking cost); asbestos hauled 2,886 miles from western to eastern Canada costs \$28.00 per ton.  
(Board of Transport Commissioners, Waybill Analysis, 1965)





pinpoint problems. Federal Departments have had discussions with American Authorities from time to time and the results of recent deliberations should be determined.\* There does not seem to be much basis for claims for a Canadian corridor and even less probability of one ever being obtained.

A further implication of ports being within the United States is that they are removed from the jurisdiction of the Canadian National Harbours Board. This may create disadvantages in the financing of transportation facilities for the shipment of raw materials. While the Federal Government is sufficiently concerned about the export of coal to Japan that it agrees to finance the port development in Vancouver to facilitate this trade, the export of mineral ores from the Yukon has to depend entirely on commercial operations. Some compensation for this situation might be justified even if it takes the form of a low interest, long-term loan to the White Pass & Yukon Railway for the construction of harbour facilities, with a commensurate reduction in the freight charges.

The intent of this recommendation is not met by the responsibility of the Federal and Territorial Governments for road costs. To some extent this responsibility is comparable to that of government for road development generally in Canada, and in part reflects the specific objectives of northern and resource development. The benefit of the latter would be offset if the Government were to withhold the type of assistance which may be provided elsewhere, namely, in port investment and operation.

#### C - FACTORS IN THE EVALUATION OF TRANSPORTATION INVESTMENTS

Government investment in transportation by definition is dependent on Government policy. However, the formulation of Government policy is influenced

---

\* See, for example, Financial Post, July 2, 1966, p.7.





by the reports received from specialists; the reports frequently have an economic or engineering orientation. Too often, therefore, recommendations are made on the basis of specific criteria not appropriate alone for the formulation of Government policy. If insufficient supplementary information is available, either within that report or others, it may be exceedingly difficult for a policy to be formulated on adequate or balanced data.

The Government is concerned with many effects which may be associated with a transportation investment; net economic benefits to the nation, regional economic effects, social implications, political and strategic effects. Many of these effects can only be weighed through the political process but, at least, information must be available on them to allow for their appraisal. The studies of transportation investment in the Yukon have not provided this type of information.

For example, the Travacon study is simply a study of the least cost means of transporting specified mineral products to tidewater. It does not encompass the wider implications of alternate transportation policies. It does not attempt to assess the extent to which a railway or road in this region might achieve regional development objectives more effectively than an area development road, let us say to Fort McPherson.

Transportation must be planned as an integrated part of a development strategy working towards specific economic and social goals. At least, alternate investment allocations must be evaluated recognizing the broad implications arising from them. "Evaluating the need for a transport project has meaning only as it is looked upon as one element in a combination of measures aimed at development."<sup>22</sup>



An experience reported by many economists with experience in developing economies is also worthwhile noting. "To provide only for the transport facility, leaving the rest to chance, is an unnecessary gamble."<sup>23</sup>

On major project developments in the Yukon it may very well be desirable for the Government to enter into contract agreements with private firms to bring resources into development. This might apply on a project where the exploration costs are high and subsequent utilization might depend on expensive transportation investments. The iron ore deposits of the Yukon might be an obvious example. The precedent for such co-operation exists in this country, for example, the oil exploration in the Arctic.



## SECTION 4

### RECOMMENDATIONS

Transportation companies operating in the Yukon serve a small dispersed population in a harsh environment distant from centres of supply and markets. These conditions must mean that transportation and living costs will be high and that resources which would be developed if located elsewhere will remain idle.

Economic development in the Yukon has been primarily dependent on mining. If this continues, as is likely, the reduction of transportation cost is vital. There is no doubt that this can be most effectively achieved by upgrading the transportation routes direct to tidewater, at the right time and to the appropriate standard. The review of the existing transportation services suggests that the following matters should be considered for further investigation.

Recommendations for further study:

(i) The Stanford Research Institute, the Travacon and in part the Alaska International Rail & Highway Commission Reports should be re-evaluated in the light of current resource development forecasts and in terms of different criteria. If the conclusions of the Travacon Report are not significantly affected by the current forecast, attempt to determine the conditions necessary before a railway extension becomes feasible.





It appears likely that the most meritorious projects will be the upgrading and extension of the White Pass & Yukon Railway and the completion of a road system behind the Alaska Panhandle to join with the British Columbia highway system at Hazelton.

(ii) The quality of service which can be provided by the transportation routes should be studied in the light of the resource forecast.

(iii) Carry out a "cost of living" survey covering at least basic shopping items, as might be done by the Dominion Bureau of Statistics. This would provide a measure of the extent to which transportation costs, and other regional costs, are reflected in consumer prices or are absorbed by manufacturers and suppliers.

(iv) Re-evaluate the desirability of constructing a bridge across the Yukon River at Dawson City.

#### Recommendations for Government policy consideration:

(i) That the reasonableness of the charges of the White Pass & Yukon route should be investigated by the Canadian Transport Commission.

(ii) That the need of Canadian Pacific Airlines to increase fares on the Yukon route be substantiated by the Canadian Transport Commission.

(iii) That the Canadian Transport Commission consider the feasibility of allowing competition on the scheduled service to the Yukon by granting one route to Pacific Western Airlines.



(iv) That the Department of Indian Affairs and Northern Development re-appraise the expenditures on remote area development roads and air-strips with a view to determining whether expenditures on the latter have been adequate.

(v) That the Federal Government examine means of implementing an assistance program in lieu of assistance through the construction and operation of a port.

(vi) That the Department of Indian Affairs & Northern Development should make the Yukon Territory responsible for the allocation of budgets between specific projects.

(vii) That truck reciprocity should be established between the Yukon and the Provinces and that the Yukon fuel tax should be placed upon the same collection basis as applied in the Provinces.



APPENDIX 1MOTOR VEHICLE LICENCES - APUBLIC SERVICE VEHICLE OPERATORS INCLUDING BUS OPERATORS IN THE YUKON  
TERRITORY FROM APRIL 1, 1967 TO FEBRUARY 1968

| <u>Name</u>                            | <u>Address</u>                          | <u>No. of<br/>Vehicles</u> |
|--|---|----------------------------|
| Alaska Highway Express Ltd.            | 12536 - 71st St., Edmonton, Alta.       | 6                          |
| Alaska Highway Tours Inc.              | Empress Theater Bldg. Fairbanks, Alaska | 12                         |
| Andrei, Nick                           | Carmacks, Yukon                         | 1                          |
| Arctic Tire Co. Ltd.                   | Box 938, Whitehorse, Yukon              | 3                          |
| Ball, James E.                         | Watson Lake, Yukon                      | 2                          |
| Bartz Transport Ltd.                   | Edmonton, Alta.                         | 2                          |
| Beloud, Bun                            | Haines Junction, Yukon                  | 4                          |
| Bjorkman, Ralph                        | Watson Lake, Yukon                      | 1                          |
| Bradley, Conway M.                     | Mile 1169, Alaska Highway, Yukon        | 1                          |
| Brewster, Arthur                       | Haines Junction, Yukon                  | 1                          |
| Brewster, Jack                         | Haines Junction, Yukon                  | 3                          |
| Burton, Arthur                         | Keno, Yukon                             | 2                          |
| Canadian Coachways Ltd.                | Whitehorse, Yukon                       | 26                         |
| Canadian Freightways Ltd.              | Calgary, Alta.                          | 17                         |
| Canadian Pacific Transport<br>Co. Ltd. | Vancouver, B.C. (94 W. Pender St.)      | 1                          |
| Chapil, F.F.                           | Dawson, Yukon                           | 2                          |
| Chaykowski, Romaine                    | Box 460, Whitehorse, Yukon              | 1                          |
| Christy, J.H.                          | Watson Lake, Yukon                      | 3                          |
| Consolidated Freightways               | Washington, U.S.A.                      | 1                          |
| Cook, J. Fred                          | Dawson City, Yukon                      | 1                          |
| Davignon, Philip                       | Johnson's Crossing, Yukon               | 1                          |
| Dawson Construction Ltd.               | Box 1158, Whitehorse, Yukon             | 2                          |
| Gauthier, Raoul                        | Mayo, Yukon                             | 1                          |



| <u>Name</u>  | <u>Address</u>                                 | <u>No. of<br/>Vehicles</u> |
|--|--|----------------------------|
| Geddes, Edward                                       | Teslin, Yukon                                  | 1                          |
| General Enterprises                                  | Whitehorse, Yukon                              | 9                          |
| R.D. Gillespie Construction                          | Dawson, Yukon                                  | 3                          |
| Gleason, R.W.  | Box 2544, Whitehorse, Yukon                    | 1                          |
| Godfrey, Harry R.                                    | Watson Lake, Yukon                             | 2                          |
| Gordies Trucking Ltd.                                | Edmonton, Alta. (Box 1112, Whitehorse<br>Y.T.) | 10                         |
| Gould, John  | Dawson City, Yukon                             | 1                          |
| Graham, R.L.   | Box 461, Whitehorse, Yukon                     | 4                          |
| Harper, Lorne D.                                     | Box 271, Whitehorse, Yukon                     | 1                          |
| Henkes Body Shop                                     | Whitehorse, Yukon                              | 1                          |
| Highway Distributors Ltd.                            | Watson Lake, Yukon                             | 1                          |
| Holway Construction                                  | Whitehorse, Yukon                              | 2                          |
| Huebschwelen, George                                 | Whitehorse, Yukon                              | 2                          |
| Hutton, Oliver                                       | Mayo, Yukon                                    | 6                          |
| K & J Trucking                                       | Watson Lake, Yukon                             | 4                          |
| Kaps Transport Ltd.                                  | Box 659, Whitehorse, Yukon                     | 9                          |
| Ken's Construction                                   | Whitehorse, Yukon                              | 1                          |
| King, Norman o/a City<br>Deliveries                  | 207 Black St. Whitehorse, Yukon                | 2                          |
| Kluppert, Conrad J.                                  | Dawson City, Yukon                             | 1                          |
| Klondike Express                                     | Dawson City, Yukon                             | 5                          |
| Klondike Motors                                      | Dawson City, Yukon                             | 3                          |
| Klondike Transport                                   | Dawson City, Yukon                             | 4                          |
| W. Knauf, leased to Loisel<br>Transport              |  | 1                          |
| Liden, Louis and/or Vera                             | Carmacks, Yukon                                | 2                          |
| Lyle, D. (Mail haul only,<br>Watson Lake to Airport) | Watson Lake, Yukon                             | 1                          |
| McKenna, Wayne                                       | 209 Steel St., Whitehorse, Yukon               | 1                          |





| <u>Name</u>  | <u>Address</u>              | <u>No. of<br/>Vehicles</u> |
|--|-----------------------------|----------------------------|
| McWatter, Donald L.  | Keno City, Yukon            | 1                          |
| Magnuson, Manne  | Atlin, B.C.                 | 1                          |
| Mease, Chuck   | Box 2685, Whitehorse, Yukon | 1                          |
| Murphy, J.P.   | Box 816, Whitehorse, Yukon  | 1                          |
| Northern Airways Limited   | Carcross, Yukon             | 1                          |
| Olson, Harold M.   | Whitehorse, Yukon           | 4                          |
| Pacific Northwest Ltd.(Yukon)  | Whitehorse, Yukon           | 3                          |
| Rempel Trail Transport Ltd.  | Edmonton, Alta.             | 1                          |
| Rushfell Transport Limited   | Box 129, Cassiar, B.C.      | 1                          |
| Russell Transport (Yukon) Ltd.   | Box 838, Whitehorse, Yukon  | 3                          |
| Scandia Trucking Ltd.  | Clover Bar, Alta.           | 1                          |
| Carl Scanlon, o/a Carlene's  | Carmacks, Yukon             | 2                          |
| Strachan Trucking  | Dawson City, Yukon          | 1                          |
| Estate of Wm. Stuart   | Box 2644, Whitehorse, Yukon | 3                          |
| B. Warnsby & M. Stutter -<br>Brainstorm Freightng<br>(contract hauling within<br>Dawson) | Dawson City, Yukon          | 1                          |
| Tamac Freight Lines  | Edmonton, Alta.             | 3                          |
| Taylor & Drury Motors Ltd.   | Whitehorse, Yukon           | 2                          |
| Thomas, Willibine  | Swift River, Yukon          | 1                          |
| H.M. Trimble & Sons  | Calgary, Alta.              | 3                          |
| Twilight Service Ltd. leased<br>to Highway Distributors                                  |                             | 1                          |
| Van Bibber, Alex   | Champagne, Y.T.             | 1                          |
| Val Scheck Transport   |                             | 2                          |
| Van Marnel Construction  | Whitehorse, Yukon           | 5                          |
| Van Genne & Son Trucking<br>Ltd. leased to H.M.<br>Trimble                               |                             | 1                          |



| <u>Name</u>                | <u>Address</u>              | <u>No. of<br/>Vehicles</u> |
|----------------------------|-----------------------------|----------------------------|
| Clyde Wann Motors Ltd.     | Morley River, Yukon         | 1                          |
| Warren Nelson Transport    | Dawson Creek, Yukon         | 5                          |
| Watson, M.R.               | Carcross, Yukon             | 1                          |
| Watson Lake Motors         | Watson Lake, Yukon          | 1                          |
| Watt, John V               | Whitehorse, Yukon           | 2                          |
| White Pass & Yukon Route   | Box 1089, Whitehorse, Yukon | 38                         |
| Yellow Cabs (Y.T.) Limited | Whitehorse, Yukon           | 21                         |
| Yukon Esso Ltd.            | Watson Lake, Yukon          | 1                          |
| Yukon Motors Ltd.          | Box 998, Whitehorse, Yukon  | 2                          |
| Yukon Moving & Storage     | Box 3019, Whitehorse, Yukon | 1                          |
| Yukon Territorial Ventures | Box 2544, Whitehorse, Yukon | 2                          |

In addition to these permanent registrations 517 single trip Freight Permits have been issued, 206 of them for through transport only.

Source: Registrar of Motor Vehicles, Whitehorse, Y.T.



MOTOR VEHICLE LICENCES - B

RESTRICTED PUBLIC SERVICE VEHICLE OPERATORS  
FROM APRIL 1, 1967 TO FEBRUARY 1968

| <u>Name</u>                                       | <u>Address</u>                 | <u>No. of<br/>Vehicles</u> |
|---|--------------------------------|----------------------------|
| Art Bell Trailer Towing Ltd.                      | Burnaby, B.C.                  | 11                         |
| W.G. Carson                                       | Ross River, B.C.               | 2                          |
| Dawson City Motors Ltd.                           |                                | 1                          |
| John Des Rosiers                                  | Transport Cafe, Alaska Highway | 1                          |
| Destruction Bay Lodge                             | Mile 1083, Alaska Highway      | 1                          |
| Dubinsky, Margaret                                | Mile 1054, Alaska Highway      | 1                          |
| Duncan, Walter J.                                 | Telsin, Yukon                  | 2                          |
| Omar Peel & Don Fraser,<br>o/a City Deliveries    | Box 2753, Whitehorse, Yukon    | 2                          |
| Garvis, Charles K.                                |                                | 1                          |
| G.M.C. (1966)                                     |                                | 1                          |
| A.J. Gleason                                      | Box 2544, Whitehorse, Yukon    | 1                          |
| Huebschwerlen, Peter                              | Box 2868, Whitehorse, Yukon    | 1                          |
| James & Wm. Jarvis                                | Box 2585, Whitehorse, Yukon    | 4                          |
| Karman, Edward                                    | Haines Junction, Yukon         | 1                          |
| Keenan, Edward                                    | 208 Alexander, Whitehorse      | 1                          |
| Kerik, Stephen                                    | Watson Lake, Yukon             | 2                          |
| Klipert, Hilbert                                  | Mayo, Yukon                    | 1                          |
| Ledergerber, B.                                   | Beaver Creek, Yukon            | 1                          |
| Yvon Lemieux - Ivan Bourque<br>o/a B & L Delivery | Keno City, Yukon               | 1                          |
| Mid-West Tankers Ltd.                             | Box 5858, Edmonton, Alta.      | 1                          |
| Moginson, Gerald                                  | Mile 1093, Alaska Highway      | 4                          |
| C.C. Const. Morgans Movers                        | Box 2691, Whitehorse, Yukon    | 1                          |





| <u>Name</u>                                    | <u>Address</u>                     | <u>No. of<br/>Vehicles</u> |
|--|------------------------------------|----------------------------|
| Moser, John L.                                 | Haines Junction, Yukon             | 1                          |
| McCrae Inn Limited                             | Box 1178, Whitehorse, Yukon        | 1                          |
| Northern Industrial<br>Carriers Ltd.           | Edmonton, Alta.                    | 6                          |
| Peel, James                                    | Whitehorse, Yukon                  | 1                          |
| Polaris Moving & Storage Ltd.                  | Box 902, Whitehorse, Yukon         | 5                          |
| Rattray's Limosine Service                     | Cassiar, B.C.                      | 3                          |
| J. Ronaghan Trucking Ltd.                      | Clover Bar, Alta.                  | 1                          |
| R.M. Schneider o/a Polaris<br>Moving & Storage | Box 902, Whitehorse, Yukon         | 5                          |
| Shearer, James                                 | 606 Wheeler St., Whitehorse, Yukon | 1                          |
| Terry, Douglas                                 | 777.7 Alaska Highway               | 2                          |
| Tourist Auto Service                           | Box 2018, Whitehorse, Yukon        | 1                          |
| Twilite Service Limited                        | Watson Lake, Yukon                 | 1                          |
| Vanderveen, Pieter                             | Destruction Bay, Yukon             | 1                          |
| Waite's Transport Limited                      | 228 - 37 Ave. N.E., Calgary, Alta. | 2                          |
| Williams, Hollis                               | Alaska Highway, Yukon              | 1                          |
| Yakielashek, M.G.                              | Mile 1118, Alaska Highway          | 1                          |
| Yaklin, E.A.                                   |                                    | 1                          |
| Yukon Chrysler                                 | Whitehorse, Yukon                  | 1                          |
| Yukon Wheel Alignment Ltd.                     | Box 1040, Whitehorse, Yukon        | 1                          |

Source: Registrar of Motor Vehicles, Whitehorse, Y.T.



APPENDIX 2

TABLE 2-1

COMMERCIAL AIR SERVICES PROVIDED AT THE MAJOR NORTHWEST CANADIAN POINTS  
BY TYPE OF SERVICE\*, SEPTEMBER 1967

---

|   | Scheduled<br>1,8 | Non-<br>Scheduled<br>2,3,9-2,<br>9-3 | Charter<br>4,9-4 | Contract<br>5 | Specialty<br>7 | Total |
|---|------------------|--------------------------------------|------------------|---------------|----------------|-------|
| <hr/>   |                  |                                      |                  |               |                |       |
| 1. <u>Yukon Territory</u>                               |                  |                                      |                  |               |                |       |
| Dawson  | 2                | 1                                    | 2                |               | 1              | 6     |
| Mayo  | 1                |                                      | 1                |               | 1              | 3     |
| Old Crow  |                  | 2                                    |                  |               |                | 2     |
| Ross River  |                  | 1                                    | 1                |               | 1              | 3     |
| Stewart River   |                  | 1                                    |                  |               |                | 1     |
| Teslin  |                  |                                      | 1                |               | 1              | 2     |
| Watson Lake   | 1                |                                      | 4                |               | 3              | 8     |
| Whitehorse  | 5                | 1                                    | 6                |               | 5              | 17    |
|   | <hr/>            |                                      |                  |               |                |       |
|   | 9                | 6                                    | 15               |               | 12             | 42    |
|   | <hr/>            |                                      |                  |               |                |       |
| 2. <u>Northwest Territories (District of Mackenzie)</u> |                  |                                      |                  |               |                |       |
| Aklavik   |                  | 1                                    |                  |               |                | 1     |
| Arctic Red River  |                  | 1                                    |                  |               |                | 1     |
| Contwoyto Lake  |                  | 1                                    |                  |               |                | 1     |
| Coppermine  |                  | 2                                    |                  |               |                | 2     |
| Fort Franklin   |                  | 1                                    |                  |               |                | 1     |
| Fort Good Hope  |                  | 1                                    |                  |               |                | 1     |
| Fort McPherson  |                  | 1                                    |                  |               |                | 1     |
| Fort Norman   |                  | 1                                    |                  |               |                | 1     |
| Fort Simpson  | 1                |                                      | 1                |               | 1              | 3     |
| Fort Smith  | 1                | 1                                    | 4                |               | 4              | 10    |



TABLE 2-1 (Continued)

COMMERCIAL AIR SERVICES PROVIDED AT THE MAJOR NORTHWEST CANADIAN POINTS  
BY TYPE OF SERVICE\*, SEPTEMBER 1967

|                                | Scheduled<br>1,8 | Non-<br>Scheduled<br>2,3,9-2,<br>9-3 | Charter<br>4,9-4 | Contract<br>5 | Specialty<br>7 | Total |
|--------------------------------|------------------|--------------------------------------|------------------|---------------|----------------|-------|
| <hr/>                          |                  |                                      |                  |               |                |       |
| 2. Northwest Territories cont. |                  |                                      |                  |               |                |       |
| Hay River                      | 1                | 1                                    | 4                |               | 4              | 10    |
| Inuvik                         | 1                | 2                                    | 6                |               | 5              | 14    |
| Norman Wells                   | 1                | 1                                    | 1                |               | 1              | 4     |
| Port Radium                    |                  | 1                                    |                  |               |                | 1     |
| Sawmill Bay                    |                  |                                      | 1                |               | 1              | 2     |
| Tuktoyaktuk                    |                  | 1                                    |                  |               |                | 1     |
| Wrigley                        | 1                |                                      |                  |               |                | 1     |
| Yellowknife                    | 1                | 3                                    | 11               |               | 11             | 26    |
|                                | 7                | 19                                   | 28               |               | 27             | 81    |
| <hr/>                          |                  |                                      |                  |               |                |       |
| 3. Northern British Columbia   |                  |                                      |                  |               |                |       |
| Alice Arm                      |                  | 1                                    | 3                |               | 2              | 6     |
| Atlin                          |                  | 1                                    |                  |               |                | 1     |
| Dawson Creek                   | 2                | 1                                    | 4                |               | 5              | 12    |
| Fort Nelson                    | 1                |                                      | 2                |               | 2              | 5     |
| Fort St. John                  | 2                |                                      | 8                |               | 16             | 26    |
| Telegraph Creek                |                  | 1                                    |                  |               |                | 1     |
| Tulsequah                      |                  | 1                                    |                  |               |                | 1     |
| Stewart                        |                  | 2                                    |                  |               |                | 2     |
|                                | 5                | 6                                    | 17               |               | 25             | 54    |
| <hr/>                          |                  |                                      |                  |               |                |       |

Source: Directory of Canadian Commercial Air Services, Parts I and II,  
Air Transport Board, Ottawa, September 1967 Amendments.

\* Explanation of classification of service contained in Appendix.



TABLE 2-2

COMMERCIAL AIR SERVICES PROVIDED IN NORTHWESTERN CANADA BY COMPANY\*September 19671. Yukon Territory

| <u>Company</u>                                   | <u>Classification<br/>of Service</u>  | <u>Points Served</u>  |
|--|---|---|
| B.C. Yukon Air Service Ltd.<br>Watson Lake, Y.T. | 4BC<br>9-4<br>7RF   | Watson Lake<br>"<br>"   |
| Canadian Pacific Airlines                        | 1   | Vancouver-Whitehorse, via<br>Kitimat, Sandspit, Terrace,<br>Smithers, Prince George,<br>Prince Rupert.  |
|  | 1   | Edmonton-Watson Lake, Whitehorse,<br>Mayo, Dawson (also Grande Prairie,<br>Fort St. John, Fort Nelson, Dawson<br>Creek.)  |
|  | (1)<br>8  | Whitehorse-Fairbanks direct/<br>via Dawson.   |
|  | 4A (2)<br>9-4<br>7RF  | Whitehorse<br>"<br>"  |
| Frontier Helicopters Ltd.<br>Watson Lake, Y.T.   | 4(C) (2)<br><br>7RF   | Watson Lake - restricted to 200<br>mile radius from this base.<br><br>Watson Lake   |
| Great Northern Airways Ltd.<br>Whitehorse, Y.T.  | 3<br><br>3<br>4AB<br>4BC<br>4B (2)<br>4B (2)<br>7RF<br>7RF<br>7RF<br>7RF<br>7FT<br>9-4<br>9-4 | Dawson, Stewart River, Old Crow<br>(also Inuvik and Sachs Harbour)<br><br>Whitehorse, Ross River.<br>Dawson<br>Whitehorse<br>Mayo<br>Ross River<br>Dawson<br>Whitehorse<br>Mayo<br>Ross River<br>Whitehorse<br>Dawson<br>Whitehorse |





TABLE 2-2 (Continued)

COMMERCIAL AIR SERVICES PROVIDED IN NORTHWESTERN CANADA BY COMPANY\*  
 SEPTEMBER 1967 cont.

1. Yukon Territory cont.

| <u>Company</u>   | <u>Classification<br/>of Service</u> | <u>Points Served</u>   |
|--|--------------------------------------|--|
| Klondike Helicopters Ltd.<br>Calgary, Alta.            | 4(C) (2)<br>7RF                      | Whitehorse<br>"  |
| Trans-North Turbo Air Ltd.<br>Whitehorse, Y.T.         | 4(C) (2)<br>7RF                      | Whitehorse<br>"  |
| Watson Lake Flying Services<br>Ltd., Watson Lake, Y.T. | 4BC (2)<br>7RF                       | Watson Lake<br>"   |
| Wien Alaska Airline Inc.<br>Fairbanks, Alaska          | 9-3<br>8<br>8                        | Old Crow, Fairbanks, Whitehorse<br>Whitehorse, Fairbanks<br>Whitehorse, Juneau |
| Yukon Airways Ltd.<br>Whitehorse, Y.T.                 | 4BC (3)<br>7RF                       | Teslin<br>"  |
| (1) Suspended  |                                      | (2) No protection at this base   |
| (3) Restricted   |                                      |  |

2. Northwest Territories (District of Mackenzie)

|   |                                 |  |           |
|---|---------------------------------|--|-----------|
| Aklavik Flying Service Ltd.<br>Inuvik, N.W.T.   | 4B<br>9-4<br>7RF                | Inuvik )<br>" )<br>" )   | Suspended |
| Carter Air Service,<br>Hay River, N.W.T.        | 4B (1)<br>7RF                   | Hay River<br>"   |           |
| Gateway Aviation Ltd.<br>Edmonton, Alta.        | 4B (1)<br>4BC (1)<br>7RF<br>7RF | Fort Smith<br>Yellowknife<br>Yellowknife<br>Fort Smith                         |           |
| Great Northern Airways Ltd.<br>Whitehorse, Y.T. | 3<br>4B (1)<br>7RF              | Inuvik, Sachs Harbour (also<br>Dawson, Stewart River, Old Crow)<br>Inuvik<br>" |           |
| Keir Air Transport Ltd.<br>Edmonton, Alta.      | 2 (2)<br>4BC (1)<br>7RF         | Hay River (Fort Vermilion, High<br>Level, Peace River)<br>Hay River<br>"       |           |



TABLE 2-2 (Continued)

COMMERCIAL AIR SERVICES PROVIDED IN NORTHWESTERN CANADA BY COMPANY\*  
 SEPTEMBER 1967 cont.

2. Northwest Territories cont.

| <u>Company</u>   | <u>Classification<br/>of Service</u>   | <u>Points Served</u>  |
|--|--|---|
| Klondike Helicopters Ltd.<br>Calgary, Alta.            | 4(C) (1)<br>7RF  | Fort Smith<br>"   |
| Koenen's Air Service,<br>Yellowknife, N.W.T.           | 4B<br>9-4<br>7RF   | Yellowknife<br>"<br>"   |
| Minto Airways Ltd.                                     | 4B<br><br>7RF  | Sawmill Bay (Great Bear Lake)<br>Restricted to one "Norseman"<br>and one "Cessna" 206 only and<br>traffic for Great Bear Lodge.<br>Sawmill Bay  |
| Northward Aviation Ltd.<br>Edmonton, Alta.             | 2 (2)<br><br>2 (2)<br><br>3 (2)<br><br>3 (2)<br><br>4B (1)<br>4B<br>4B (1)<br>4B<br>7RF<br>7RF<br>7RF<br>7RF<br>7RF<br>9-4 | Arctic Red River, Fort McPherson<br>Aklavik, Inuvik, Tuktoyaktuk<br><br>Norman Wells, Fort Norman, Fort<br>Good Hope, Fort Franklin (no<br>protection)<br><br>Yellowknife, Port Radium, Copper-<br>mine.<br><br>Yellowknife, Contwoyto Lake<br><br>Norman Wells<br>Fort Smith<br>Hay River<br>Inuvik<br>Yellowknife<br>Fort Smith<br>Hay River<br>Yellowknife<br>Norman Wells<br>Inuvik<br>Inuvik |
| Northern Mountain Airlines<br>Ltd. Prince George, B.C. | 4B<br>4B<br>4B (1)<br>7RF<br>7RF<br>7RF  | Hay River<br>Fort Smith<br>Fort Simpson<br>Hay River<br>Fort Smith<br>Fort Simpson  |



TABLE 2-2 (Continued)

COMMERCIAL AIR SERVICES PROVIDED IN NORTHWESTERN CANADA BY COMPANY\*  
 SEPTEMBER 1967 cont.

2. Northwest Territories cont.

| <u>Company</u>  | <u>Classification<br/>of Service</u>                                   | <u>Points Served</u>  |
|---|--|---|
| North West Territorial<br>Airways Ltd. Vancouver,<br>B.C. | 4AB<br>9-4<br>7RF<br>7AC   | Yellowknife - Restricted to one<br>DC-3 only<br>Yellowknife<br>Yellowknife<br>Yellowknife   |
| Pacific Western Airlines Ltd.<br>Vancouver, B.C.          | 1<br><br><br>2 <sup>(4)</sup><br><br>4A <sup>(3)</sup><br>7RF<br>7AIRA | Edmonton - Yellowknife, Hay River,<br>Fort Smith, Fort Simpson, Norman<br>Wells, Inuvik, Wrigley, (also<br>Peace River, Fort McMurray,<br>Resolution, Uranium City/Beaver<br>Lodge, Calgary, Dawson Creek,<br>Fort Chipewyan, Rainbow Lake)<br><br>Edmonton - Yellowknife, Copper-<br>mine, Fort Smith (also Cambridge<br>Bay)<br><br>Yellowknife<br>Yellowknife<br>Yellowknife |
| Ptarmigan Airways Ltd.<br>Yellowknife, N.W.T.             | 4B <sup>(1)</sup><br>7RF   | Yellowknife<br>"  |
| Reindeer Air Service Ltd.<br>Reindeer Station, N.W.T.     | 4BC <sup>(1)</sup><br>7RF<br>7AIRA <sup>(2)</sup>                      | Inuvik<br>"<br>"  |
| Sioux Narrows Airways Ltd.<br>Winnipeg, Man.              | 4B<br>7RF  | Yellowknife - Restricted to<br>summer operations only<br>Yellowknife  |
| Wardair Canada Ltd.<br>Edmonton, Alta.                    | 4AB<br>9-4<br>7RF<br>7AC   | Yellowknife<br>"<br>"<br>"  |

(1) No protection at this base

(2) Restricted to certain types  
of aircraft

(3) Restricted

(4) Restricted to Group A aircraft  
protection between Yellowknife  
and Fort Smith.





TABLE 2-2 (Continued)

COMMERCIAL AIR SERVICES PROVIDED IN NORTHWESTERN CANADA BY COMPANY\*  
 SEPTEMBER 1967 cont.

### 3. Northern British Columbia

| <u>Company</u>  | <u>Classification<br/>of Service</u>                     | <u>Points Served</u>   |
|---|--|--|
| Airexec Services Ltd.<br>Fort St. John, B.C.              | 4B <sup>(1)</sup><br>9-4<br>7RF                          | Fort St. John<br>"<br>"  |
| Canadian Pacific Airways<br>Vancouver, B.C.               | 1<br><br>1<br><br>4A <sup>(1)</sup><br>9-4<br>7RF        | Vancouver - Fort St. John via<br>Prince George (also Kamloops,<br>Williams Lake)<br><br>Edmonton - Dawson Creek, Fort<br>St. John, Fort Nelson (also<br>Watson Lake, Whitehorse, Mayo,<br>Dawson)<br><br>Fort St. John<br>"<br>" |
| Coast Range Airways Ltd.<br>Atlin, B.C.                   | 3<br><br>4BC<br>4(C) <sup>(1)</sup><br>9-4<br>7RF<br>7FT | Atlin, Telegraph Creek, Tulse-<br>quah<br><br>Atlin<br>"<br>"<br>"<br>"  |
| Fort St. John Aviation Ltd.<br>Fort St. John, B.C.        | 4(C) <sup>(1)</sup><br>7RF<br>7FT                        | Fort St. John<br>"<br>"  |
| Gateway Aviation Ltd.<br>Edmonton, Alta.                  | 4B<br>4B <sup>(1)</sup><br>7RF<br>7RF<br>9-4             | Dawson Creek<br>Fort Nelson<br>Dawson Creek<br>Fort Nelson<br>Dawson Creek   |
| Hill Aviation<br>Fort St. John                            | 4C <sup>(1)</sup><br>7RF<br>7FT<br>7APS<br>7AIRA         | Fort St. John<br>"<br>"<br>"<br>"  |
| Northward Aviation Ltd.<br>Edmonton, Alta.                | 4B <sup>(1)</sup><br>7RF                                 | Dawson Creek<br>"  |
| North Cariboo Flying Service<br>Ltd., Fort St. John, B.C. | 4B <sup>(1)</sup><br>7RF                                 | Fort St. John<br>"   |



TABLE 2-2 (Continued)

COMMERCIAL AIR SERVICES PROVIDED IN NORTHWESTERN CANADA BY COMPANY\*  
 SEPTEMBER 1967 cont.

3. Northern British Columbia cont.

| <u>Company</u>   | <u>Classification<br/>of Service</u>  | <u>Points Served</u>  |
|--|---|---|
| Northern (Fort Nelson,<br>B.C.) Air Service<br>Co. Ltd.<br>Fort Nelson, B.C. | 4B <sup>(1)</sup><br>7RF  | Fort Nelson<br>"  |
| Okanagan Helicopters,<br>Vancouver, B.C.                                     | 4(C) <sup>(1)</sup><br>7RF<br>7AP<br>7APS<br>7AIRA<br>7AC<br>7A Const<br>7AAM | Fort St. John - Fort Nelson<br>Fort St. John<br>"<br>"<br>"<br>"<br>"<br>"  |
| Pacific Western Airlines Ltd.<br>Vancouver, B.C.                             | 1<br><br>2<br><br>3   | Edmonton - Dawson Creek (including<br>connections in N.W.T.)<br><br>Prince Rupert, Alice Arm, Stewart,<br>Dawson Creek, Prince George,<br>Hudson Hope.<br><br>Stewart, Anuk River/Scud River. |
| Vic Turner Ltd.<br>Dawson Creek, B.C.  | 4C<br>7RF<br>7FT<br>7AIRA   | Dawson Creek<br>"<br>"<br>"   |

(1) No protection at this base.

Source: The Directory of Canadian Commercial Air Services, Air Transport  
 Board, Ottawa, Ont. September 1967 Amendments.

\* Explanation of classification of service contained in Appendix.



TABLE 2-3

CLASSIFICATION OF SERVICE

|           |   |
|-----------|---|
| 1         | Class 1 Scheduled.  |
| 2         | Class 2 Regular Specific Point  |
| 3         | Class 3 Irregular Specific Point                                      |
| 4A        | Class 4 Group A Charter   |
| 4B        | Class 4 Group B Charter   |
| 4C        | Class 4 Group C Charter   |
| 4AB       | Class 4 Groups A and B Charter  |
| 4ABC      | Class 4 Groups A, B and C Charter                                     |
| 4BC       | Class 4 Groups B and C Charter  |
| 4(h)      | Class 4 Helicopter  |
| 5         | Class 5 Contract  |
| 6         | Class 6 Flying Clubs (non-profit)                                     |
| 7RF       | Class 7 Specialty - Recreational Flying                               |
| 7FT       | Class 7 Specialty - Flying Training                                   |
| 7AP       | Class 7 Specialty - Aerial Photography restricted to Scenics          |
| 7APS      | Class 7 Specialty - Aerial Photography and Survey                     |
| 7AAD      | Class 7 Specialty - Aerial Application and Distribution               |
| 7AIRA     | Class 7 Specialty - Aerial Inspection, Reconnaissance and Advertising |
| 7AC       | Class 7 Specialty - Aerial Control                                    |
| 7A Const. | Class 7 Specialty - Aerial Construction                               |
| 7AAM      | Class 7 Specialty - Air Ambulance and Mercy Services                  |
| 8         | Class 8 International Schedule  |
| 9-2       | Class 9-2 International Regular Specific Point                        |
| 9-3       | Class 9-3 International Irregular Specific Point                      |
| 9-4       | Class 9-4 International non-scheduled Charter                         |
| 9-5       | Class 9-5 International Contract                                      |
| 9-7       | Class 9-7 International Specialty                                     |



## Class 4 Charter Air Carriers

### 1. Fixed Wing Aircraft

Group A - carriers operating one or more aircraft each of which has a maximum authorized take-off weight on wheels in excess of 18,000 pounds.

Group B - carriers operating one or more aircraft each of which has a maximum authorized take-off weight on wheels in excess of 2,500 pounds but not greater than 18,000 pounds.

Group C - carriers operating one or more aircraft each of which has a maximum authorized take-off weight on wheels not greater than 2,500 pounds.

### 2. Rotating Wing Aircraft

Group A - RWA carriers operating one or more aircraft each of which has a maximum authorized take-off weight in excess of 18,000 pounds.

Group B - RWA carriers operating one or more aircraft each of which has a maximum authorized take-off weight in excess of 3,500 pounds but not greater than 18,000 pounds.

Group C - RWA carriers operating one or more aircraft each of which has a maximum authorized take-off weight not greater than 3,500 pounds.

Source: Directory of Canadian Commercial Air Services, Air Transport Board, Ottawa. September 1967 Amendments.





AIRCRAFT MOVEMENT STATISTICS AT AIRPORTS WITH AND WITHOUT AIR TRAFFIC CONTROL TOWERS  
BY TYPE OF OPERATION, 1962 - 1966.

| ITINERANT MOVEMENTS |                |                          |            | LOCAL MOVEMENTS |          |                                 |       |          |       |                         |      |       |
|---------------------|----------------|--------------------------|------------|-----------------|----------|---------------------------------|-------|----------|-------|-------------------------|------|-------|
| Airport             | Sched-<br>uled | Other<br>Commer-<br>cial | Government |                 |          | Total<br>Itinerant<br>Movements | Civil | Military | Total | Total<br>Move-<br>ments |      |       |
|                     |                |                          | Private    | Civil           | Military |                                 |       |          |       |                         |      |       |
| Whitehorse          | 1966           | 1731                     | 3919       | 5986            | 333      | 411                             |       | 12440    | -     | -                       | 9268 | 21781 |
|                     | 1965           | 1597                     | 3048       | 3973            | 410      | 441                             |       | 9469     | -     | -                       | 5294 | 14863 |
|                     | 1964           | 1542                     | 2286       | 3491            | 355      | 365                             |       | 8039     | -     | -                       | 3926 | 12069 |
|                     | 1963           | 1279                     | 1958       | 4320            | 285      | 472                             |       | 8314     | -     | -                       | 5702 | 14045 |
|                     | 1962           | 1372                     | 2019       | 4137            | 417      | 320                             |       | 8265     | -     | -                       | 4538 | 12822 |
| Watson Lake         | 1966           | 634                      | 111        | 1600            | 72       | 32                              |       | 2449     | 679   | 2                       | 681  | 3130  |
|                     | 1965           | 596                      | 79         | 1489            | 135      | 40                              |       | 2339     | 595   | -                       | 595  | 2934  |
|                     | 1964           | 572                      | 78         | 1323            | 109      | 52                              |       | 2134     | 448   | -                       | 448  | 2582  |
|                     | 1963           | 562                      | 144        | 1359            | 102      | 31                              |       | 2198     | 450   | -                       | 450  | 2648  |
|                     | 1962           | 501                      | 94         | 1174            | 85       | 64                              |       | 1918     | 748   | 1                       | 749  | 2667  |
| Teslin              | 1966           | -                        | 132        | 265             | 12       | -                               |       | 409      | -     | -                       | -    | 409   |
|                     | 1965           | -                        | 96         | 361             | 30       | 4                               |       | 491      | 134   | -                       | 134  | 625   |
|                     | 1964           | -                        | 66         | 258             | 27       | 8                               |       | 359      | 129   | -                       | 129  | 488   |
|                     | 1963           | -                        | 133        | 238             | 36       | 10                              |       | 417      | 35    | -                       | 35   | 452   |
|                     | 1962           | -                        | 163        | 334             | 22       | 12                              |       | 531      | 115   | -                       | 115  | 646   |

Source: Aircraft Movement Statistics: Airports with Air Traffic Control Towers Annual Reports 1964 - 1966, Aviation Statistics Centre, Ottawa.  
Aircraft Movements at Airports without D.O.T. Towers, Annual Report 1965, 1966, Aviation Statistics Centre, Ottawa.



AIRCRAFT MOVEMENT STATISTICS AT AIRPORTS WITH AND WITHOUT AIR TRAFFIC CONTROL TOWERS  
BY TYPE OF OPERATION, 1962 - 1966

## ITINERANT MOVEMENTS (1)

## LOCAL MOVEMENTS (2)

| Airport       |      | Sched-<br>uled<br>(3) | Other<br>Commer-<br>cial (4) | Government |       |          | Total<br>Itinerant<br>Movements | Total |          |       | Total<br>Move-<br>ments |
|---------------|------|-----------------------|------------------------------|------------|-------|----------|---------------------------------|-------|----------|-------|-------------------------|
|               |      |                       |                              | Private    | Civil | Military |                                 | Civil | Military | Total |                         |
| Fort St. John | 1966 | 2597                  | 7680                         | 5617       | 182   | 71       | 16147                           | -     | -        | 14624 | 30951*                  |
|               | 1965 | 2546                  | 5833                         | 7413       | 173   | 88       | 16053                           | -     | -        | 25562 | 41777*                  |
|               | 1964 | 2924                  | 3096                         | 5419       | 167   | 194      | 11800                           | -     | -        | 15407 | 27311*                  |
|               | 1963 | 2857                  | 1835                         | 3564       | 98    | 66       | 8420                            | -     | -        | 9458  | 17878                   |
|               | 1962 | 2927                  | 861                          | 3125       | 75    | 67       | 7055                            | -     | -        | 6385  | 13440                   |
| Fort Nelson   | 1966 | 887                   | 3711                         | 4458       | 265   | 129      | 9450                            | 4486  | 30       | 4516  | 13966                   |
|               | 1965 | 1100                  | 2226                         | 2995       | 199   | 209      | 6729                            | 621   | -        | 621   | 7350                    |
|               | 1964 | 848                   | 2406                         | 3284       | 202   | 107      | 6847                            | 444   | -        | 444   | 7291                    |
|               | 1963 | 717                   | 2135                         | 4441       | 141   | 251      | 7685                            | 727   | -        | 727   | 8412                    |
|               | 1962 | 991                   | 583                          | 2790       | 124   | 513      | 5001                            | 3007  | 170      | 3777  | 8178                    |

\*Includes simulated approaches.

Source: Aircraft Movement Statistics: Airports with Air Traffic Control Towers, Annual Reports 1964 - 1966, Aviation Statistics Centre, Ottawa.  
Aircraft Movements at Airports without D.O.T. Towers, Annual Reports 1965, 1966, Aviation Statistics Centre, Ottawa.

- (1) Defined as a movement in which an aircraft enters or leaves tower control and is known to be proceeding to or arriving from another location.
- (2) Defined as aircraft which remain within the local area of the airport.
- (3) Classes 1 and 8.
- (4) All flights excluding scheduled unit toll services but including non-scheduled unit toll services. N.B. Statistics for airports with D.O.T. towers contain separate "unscheduled flights" column. However, in the case of the airports under review these statistics were either negligible or non-existent and have been included in "other commercial" column.

The above notes (1) (2) (3) and (4) also apply to Tables.



NORTHWEST TERRITORIES TABLE 3-3

AIRCRAFT MOVEMENT STATISTICS AT AIRPORTS WITH AND WITHOUT AIR TRAFFIC CONTROL TOWERS  
BY TYPE OF OPERATION, 1962 - 1966

| ITINERANT MOVEMENTS |                |                          |         | LOCAL MOVEMENTS |          |                                 |       |          |       |                         |
|---------------------|----------------|--------------------------|---------|-----------------|----------|---------------------------------|-------|----------|-------|-------------------------|
| Airport             | Sched-<br>uled | Other<br>Commer-<br>cial | Private | Government      |          | Total<br>Itinerant<br>Movements | Civil | Military | Total | Total<br>Move-<br>ments |
|                     |                |                          |         | Civil           | Military |                                 |       |          |       |                         |
| Yellowknife         | 1966           | 1246                     | 3135    | 476             | 231      | 120                             | 1938  | 7        | 1945  | 7153                    |
|                     | 1965           | 973                      | 2465    | 223             | 224      | 91                              | 299   | 4        | 303   | 4279                    |
|                     | 1964           | 997                      | 1963    | 489             | 206      | 454                             | 493   | -        | 493   | 4602                    |
|                     | 1963           | 851                      | 2048    | 383             | 153      | 196                             | 269   | 12       | 281   | 3912                    |
|                     | 1962           | 848                      | 1355    | 239             | 157      | 218                             | 1440  | 18       | 1458  | 4275                    |
| Hay River           | 1966           | 1091                     | 3207    | 909             | 196      | 7                               | 1044  | -        | 1044  | 6454                    |
|                     | 1965           | 1048                     | 3109    | 627             | 235      | -                               | 641   | -        | 641   | 5660                    |
|                     | 1964           | 688                      | 1911    | 914             | 213      | 8                               | 565   | -        | 565   | 4299                    |
|                     | 1963           | 475                      | 1280    | 762             | 142      | 36                              | 1638  | -        | 1638  | 4333                    |
|                     | 1962           | 443                      | 698     | 777             | 172      | 50                              | 1494  | -        | 1494  | 3634                    |
| Norman Wells        | 1966           | 825                      | 1968    | 890             | 202      | 64                              | 46    | 2        | 48    | 3997                    |
|                     | 1965           | 615                      | 1427    | 921             | 179      | 14                              | 45    | 4        | 49    | 3205                    |
|                     | 1964           | 556                      | 1071    | 533             | 149      | 10                              | 1143  | 2        | 1145  | 3464                    |
|                     | 1963           | 456                      | 1170    | 334             | 96       | 31                              | 740   | -        | 740   | 2827                    |
|                     | 1962           | 499                      | 990     | 271             | 125      | 17                              | 16    | -        | 16    | 1918                    |
| Inuvik              | 1966           | 389                      | 1777    | 597             | 331      | 110                             | 228   | 2        | 230   | 3434                    |
|                     | 1965           | 310                      | 1773    | 692             | 346      | 86                              | 1403  | -        | 1403  | 4610                    |
|                     | 1964           | 273                      | 934     | 367             | 288      | 99                              | 860   | 2        | 862   | 2823                    |
|                     | 1963           | 192                      | 911     | 316             | 325      | 136                             | 85    | 6        | 91    | 1971                    |
|                     | 1962           | 208                      | 690     | 148             | 368      | 64                              | 85    | 5        | 90    | 1568                    |

Source: Aircraft Movements at Airports without D.O.T. Towers - Annual Return 1965 and 1966, Aviation Statistics Centre, Ottawa.





TABLE 3-4

## YUKON TERRITORY

ITINERANT MOVEMENTS BY TYPE OF POWER PLANT, 1962 - 1966

| Airport     |      | Helicopter | Piston | Turbo-Prop | Jet | Total  |
|-------------|------|------------|--------|------------|-----|--------|
| Whitehorse  | 1966 | 991        | 10,537 | 736        | 176 | 12,240 |
|             | 1965 | 532        | 8,070  | 636        | 231 | 9,469  |
|             | 1964 | 452        | 6,925  | 591        | 71  | 8,039  |
|             | 1963 | -          | -      | -          | -   | -      |
|             | 1962 | -          | -      | -          | -   | -      |
| Watson Lake | 1966 | 100        | 2,345  | 2          | 2   | 2,449  |
|             | 1965 | 64         | 227    | 4          | -   | 2,339  |
|             | 1964 | 114        | 2,010  | 10         | -   | 2,134  |
|             | 1963 | 68         | 2,116  | 14         | -   | 2,198  |
|             | 1962 | 59         | 1,717  | 142        | -   | 1,918  |
| Teslin      | 1966 | 106        | 303    | -          | -   | 409    |
|             | 1965 | 100        | 388    | 3          | -   | 491    |
|             | 1964 | 93         | 266    | -          | -   | 359    |
|             | 1963 | 125        | 292    | -          | -   | 417    |
|             | 1962 | 77         | 454    | -          | -   | 531    |

Source: Aircraft Movements at Airports without D.O.T. Towers, Table 2, Annual 1966, Aviation Statistics Centre, Ottawa.

Aircraft Movement Statistics, Airports with Air Traffic Control Towers, Table 4, Annual 1966, Aviation Statistics Centre, Ottawa.



TABLE 3-5

NORTHERN BRITISH COLUMBIAItinerant Movements by Type of Power Plant, 1962 - 1966

| <u>Airport</u> |      | <u>Helicopter</u> | <u>Piston</u> | <u>Turbo-Prop</u> | <u>Jet</u> | <u>Total</u> |
|----------------|------|-------------------|---------------|-------------------|------------|--------------|
| Fort St. John  | 1966 | 1,200             | 14,787        | 95                | 65         | 16,147       |
|                | 1965 | 987               | 15,001        | 46                | 19         | 16,053       |
|                | 1964 | 649               | 11,106        | 37                | 8          | 11,800       |
|                | 1963 | -                 | -             | -                 | -          | -            |
|                | 1962 | -                 | -             | -                 | -          | -            |
| Fort Nelson    | 1966 | 650               | 8,767         | 19                | 14         | 9,450        |
|                | 1965 | 237               | 6,444         | 21                | 27         | 6,729        |
|                | 1964 | 253               | 6,576         | 16                | 2          | 6,847        |
|                | 1963 | 193               | 7,467         | 14                | 11         | 7,685        |
|                | 1962 | 194               | 4,582         | 223               | 2          | 5,001        |

Source: Aircraft Movements at Airports without D.O.T. Towers, Table 2, Annual 1966, Aviation Statistics Centre, Ottawa.

Aircraft Movement Statistics, Airports with Air Traffic Control, Table 4, Annual 1966, Aviation Statistics Centre, Ottawa.



TABLE 3-6

NORTHWEST TERRITORIESItinerant Movements by Type of Power Plant, 1962 - 1966

| <u>Airport</u> |      | <u>Helicopter</u> | <u>Piston</u> | <u>Turbo-Prop</u> | <u>Jet</u> | <u>Total</u> |
|----------------|------|-------------------|---------------|-------------------|------------|--------------|
| Yellowknife    | 1966 | 59                | 4,996         | 120               | 53         | 5,208        |
|                | 1965 | 12                | 3,939         | 23                | 2          | 3,976        |
|                | 1964 | 9                 | 4,095         | 1                 | 4          | 4,109        |
|                | 1963 | 40                | 3,583         | 4                 | 4          | 3,631        |
|                | 1962 | 29                | 2,779         | 9                 | -          | 2,817        |
| Hay River      | 1966 | 656               | 4,745         | 7                 | 2          | 5,410        |
|                | 1965 | 574               | 4,445         | -                 | -          | 5,019        |
|                | 1964 | 45                | 3,684         | 5                 | -          | 3,734        |
|                | 1963 | 34                | 2,661         | -                 | -          | 2,695        |
|                | 1962 | 48                | 2,092         | -                 | -          | 2,140        |
| Norman Wells   | 1966 | 386               | 3,195         | 368               | -          | 3,949        |
|                | 1965 | 56                | 3,032         | 68                | -          | 3,156        |
|                | 1964 | 34                | 2,285         | -                 | -          | 2,319        |
|                | 1963 | 22                | 2,063         | 2                 | -          | 2,087        |
|                | 1962 | 7                 | 1,894         | 1                 | -          | 1,902        |
| Inuvik         | 1966 | 290               | 2,718         | 181               | 12         | 3,201        |
|                | 1965 | 137               | 2,965         | 105               | -          | 3,207        |
|                | 1964 | 40                | 1,915         | 6                 | -          | 1,961        |
|                | 1963 | 41                | 1,831         | 8                 | -          | 1,880        |
|                | 1962 | 20                | 1,452         | 6                 | -          | 1,478        |

Source: Aircraft Movements at Airports without D.O.T. Towers, Table 2,  
Annual 1966, Aviation Statistics Centre, Ottawa.



## APPENDIX 4

TABLE 4-1

DOMESTIC PASSENGER ORIGIN AND DESTINATION STATISTICS  
FROM SELECTED AIRPORTS  
1962 - 1966 ANNUAL TOTALS

---

|    | <u>Airport</u>                   | <u>1962</u> | <u>1963</u> | <u>1964</u> | <u>1965</u> | <u>1966</u> |
|----|----------------------------------|-------------|-------------|-------------|-------------|-------------|
| 1. | <u>Yukon</u>                     |             |             |             |             |             |
|    | *Dawson <sup>a</sup> .           | 1,690       | 1,530       | 1,925       | 1,795       | 2,250       |
|    | *Mayo <sup>a</sup> .             | 1,445       | 1,885       | 2,360       | 2,375       | 2,135       |
|    | *Watson Lake                     | 4,150       | 4,240       | 4,355       | 5,100       | 6,545       |
|    | *Whitehorse                      | 14,020      | 13,435      | 15,020      | 17,125      | 21,555      |
| 2. | <u>Northwest Territory</u>       |             |             |             |             |             |
|    | Cambridge Bay                    | 510         | 435         | 445         | 650         | 630         |
|    | *Fort Simpson                    | 1,395       | 1,120       | 1,365       | 1,620       | 1,280       |
|    | *Fort Smith                      | 8,580       | 9,030       | 9,995       | 11,695      | 9,485       |
|    | *Hay River                       | 2,840       | 3,515       | 4,430       | 5,795       | 7,290       |
|    | *Inuvik                          | 5,420       | 5,265       | 5,970       | 8,650       | 5,535       |
|    | *Norman Wells                    | 1,820       | 1,550       | 1,425       | 2,070       | 1,695       |
|    | *Yellowknife                     | 9,980       | 8,295       | 8,425       | 12,440      | 13,525      |
| 3. | <u>Northern British Columbia</u> |             |             |             |             |             |
|    | *Alice Arm                       | -           | -           | -           | -           | 2,655       |
|    | *Dawson Creek                    | -           | 1,655       | 2,795       | 3,680       | 4,980       |
|    | *Fort Nelson                     | 5,840       | 5,230       | 6,300       | 4,795       | 5,340       |
|    | *Fort St. John                   | 25,015      | 23,560      | 24,935      | 22,745      | 27,345      |
|    | *Hudson Hope                     | -           | -           | -           | -           | 14,125      |
|    | *Stewart                         | -           | -           | -           | -           | 2,935       |

Source: Airline Passenger Origin and Destination Statistics, Domestic Report, 1966, Air Transport Board, Queen's Printer, Ottawa.

\* Mainline points with fairly regular service, DC3 class or larger.

<sup>a</sup>. No traffic reported for September 1965 as C.P. withdrew service.





TABLE 4-2

PASSENGER ORIGIN AND DESTINATION STATISTICS  
ALL CANADIAN CARRIAGE ONLY

| <u>YUKON TERRITORY</u> | 1965  |       |       | 1966  |       |       |
|------------------------|-------|-------|-------|-------|-------|-------|
|                        | Out   | In    | Total | Out   | In    | Total |
| 1. <u>Dawson City</u>  |       |       |       |       |       |       |
| Alberta                | 295   | 300   | 595   | 170   | 125   | 295   |
| British Columbia       | 220   | 270   | 490   | 535   | 495   | 930   |
| Newfoundland           | -     | -     | -     | 5     | -     | 5     |
| Yukon Territory        | 375   | 265   | 640   | 415   | 485   | 900   |
| Quebec                 | 5     | -     | 5     | 10    | -     | 10    |
| Ontario                | 35    | 20    | 55    | 55    | 50    | 105   |
| Manitoba               | 5     | 5     | 10    | 5     | -     | 5     |
| TOTAL                  | 935   | 860   | 1,795 | 1,095 | 1,155 | 2,250 |
| 2. <u>Mayo</u>         |       |       |       |       |       |       |
| Alberta                | 230   | 405   | 635   | 150   | 380   | 530   |
| British Columbia       | 450   | 530   | 980   | 360   | 520   | 880   |
| Yukon                  | 320   | 340   | 660   | 330   | 270   | 600   |
| Ontario                | 40    | 15    | 55    | 15    | 10    | 25    |
| Quebec                 | 15    | 10    | 25    | 15    | 10    | 25    |
| Saskatchewan           | 5     | -     | 5     | 10    | 5     | 15    |
| Manitoba               | -     | 10    | 10    | 25    | 20    | 45    |
| Northwest Territory    | 5     | -     | 5     | 5     | 10    | 15    |
| TOTAL                  | 1,065 | 1,310 | 2,375 | 910   | 1,225 | 2,135 |



TABLE 4-2 (Continued)

PASSENGER ORIGIN AND DESTINATION STATISTICS (Continued)YUKON TERRITORY

|                       | 1965  |       |       | 1966  |       |       |
|-----------------------|-------|-------|-------|-------|-------|-------|
|                       | Out   | In    | Total | Out   | In    | Total |
| 3. <u>Watson Lake</u> |       |       |       |       |       |       |
| Alberta               | 670   | 950   | 1,620 | 760   | 1,000 | 1,760 |
| British Columbia      | 1,020 | 1,045 | 2,065 | 1,525 | 1,395 | 2,920 |
| Yukon                 | 665   | 460   | 1,125 | 790   | 675   | 1,465 |
| Ontario               | 75    | 125   | 200   | 110   | 80    | 190   |
| Northwest Territory   | -     | -     | -     | 10    | 10    | 20    |
| Nova Scotia           | 5     | -     | 5     | 15    | 15    | 30    |
| Quebec                | 15    | 25    | 40    | 40    | 55    | 95    |
| Saskatchewan          | 5     | -     | 5     | 10    | 15    | 25    |
| Manitoba              | 25    | 15    | 40    | 15    | 25    | 40    |
| TOTAL                 | 2,480 | 2,620 | 5,100 | 3,275 | 3,270 | 6,545 |

4. Whitehorse

|                     |       |       |        |        |        |        |
|---------------------|-------|-------|--------|--------|--------|--------|
| Alberta             | 2,540 | 2,405 | 4,945  | 3,080  | 2,975  | 6,055  |
| British Columbia    | 4,460 | 4,420 | 8,880  | 5,725  | 5,410  | 11,135 |
| P.E.I.              | 5     | 5     | 10     | -      | 5      | 5      |
| Yukon               | 995   | 1,290 | 2,285  | 1,315  | 1,420  | 2,735  |
| Ontario             | 260   | 295   | 555    | 525    | 420    | 945    |
| New Brunswick       | 15    | 35    | 50     | 45     | 15     | 60     |
| Northwest Territory | 25    | 30    | 55     | 30     | 25     | 55     |
| Nova Scotia         | 25    | 10    | 35     | 15     | 5      | 20     |
| Quebec              | 50    | 15    | 65     | 55     | 70     | 125    |
| Saskatchewan        | 55    | 50    | 105    | 95     | 125    | 220    |
| Newfoundland        | 5     | 15    | 20     | -      | 5      | 5      |
| Manitoba            | 55    | 65    | 120    | 80     | 115    | 195    |
| TOTAL               | 8,490 | 8,635 | 17,125 | 10,965 | 10,590 | 21,555 |



TABLE 4-3

WHITEHORSE:<sup>a</sup> C.P.A. BOARDING AND DEPLANING PASSENGERS,  
 1964, 1966 AND JANUARY - OCTOBER 1967

| <u>Month</u> | <u>Boarding</u> |               |             | <u>Deplaning</u> |               |             |
|--------------|-----------------|---------------|-------------|------------------|---------------|-------------|
|              | <u>1964</u>     | <u>1966</u>   | <u>1967</u> | <u>1964</u>      | <u>1966</u>   | <u>1967</u> |
| January      | 770             | 782           | 845         | 911              | 1,055         | 1,083       |
| February     | 526             | 704           | 695         | 562              | 848           | 887         |
| March        | 810             | 933           | 1,081       | 821              | 1,031         | 1,043       |
| April        | 811             | 1,032         | 1,048       | 923              | 1,114         | 1,129       |
| May          | 802             | 967           | 977         | 990              | 1,218         |             |
| June         | 1,043           | 1,189         | 1,261       | 1,153            | 1,356         | 1,451       |
| July         | 1,284           | 1,521         | 1,846       | 1,116            | 1,520         | 1,897       |
| August       | 1,157           | 1,710         | 2,004       | 1,357            | 1,549         | 1,763       |
| September    | 1,345           | 1,674         | 1,938       | 1,051            | 1,281         | 1,611       |
| October      | 867             | 1,345         | 1,507       | 818              | 1,034         | 1,228       |
| November     | 681             | 1,067         | N.A.        | 632              | 790           | N.A.        |
| December     | 866             | 1,176         | N.A.        | 716              | 737           | N.A.        |
|              | <u>10,962</u>   | <u>14,100</u> |             | <u>11,050</u>    | <u>13,533</u> |             |

a. Includes Mayo and Dawson.

N.A. Not available - 1965 not available





TABLE 4-4

WATSON LAKE: C.P.A. BOARDING AND DEPLANING PASSENGER STATISTICS,  
 1964, 1966 AND JANUARY - OCTOBER, 1967

| <u>Month</u> | <u>Boarding</u> |              |             | <u>Deplaning</u> |              |             |
|--------------|-----------------|--------------|-------------|------------------|--------------|-------------|
|              | <u>1964</u>     | <u>1966</u>  | <u>1967</u> | <u>1964</u>      | <u>1966</u>  | <u>1967</u> |
| January      | 127             | 216          | 217         | 176              | 231          | 266         |
| February     | 123             | 171          | 244         | 112              | 210          | 195         |
| March        | 150             | 238          | 266         | 151              | 241          | 241         |
| April        | 134             | 262          | 241         | 140              | 298          | 285         |
| May          | 170             | 256          | 275         | 191              | 343          | 354         |
| June         | 185             | 283          | 298         | 302              | 408          | 368         |
| July         | 251             | 399          | 364         | 289              | 404          | 383         |
| August       | 356             | 464          | 482         | 345              | 423          | 454         |
| September    | 351             | 469          | 506         | 292              | 393          | 500         |
| October      | 259             | 361          | 474         | 206              | 270          | 436         |
| November     | 154             | 226          | N.A.        | 160              | 214          | N.A.        |
| December     | 228             | 275          | N.A.        | 169              | 206          | N.A.        |
|              | <u>2,488</u>    | <u>3,620</u> |             | <u>2,533</u>     | <u>3,641</u> |             |



TABLE 4-5

TYPE OF PASSENGERS:  
PURPOSE OF TRIP, FOR ON BOARD TRAFFIC NORTH OF FT. ST. JOHN<sup>a</sup>.

A. PURPOSE OF TRIP:

|                             |     |
|-----------------------------|-----|
| Business                    | 65% |
| Visiting friends, relations | 25% |
| Tourism <sup>b</sup> .      | 10% |

B. PLACE OF RESIDENCE:

|                       |     |
|-----------------------|-----|
| Yukon Resident        | 13% |
| B.C.                  | 34% |
| (Vancouver Area - 27) |     |
| (Other B.C. - 7)      |     |
| Alberta               | 27% |
| (Edmonton - 14)       |     |
| (Calgary - 9)         |     |
| (Other Alta. - 4)     |     |
| Other Canada          | 16% |
| U.S.A.                | 8%  |
| Other Country         | 2%  |

a. Source: On Board Survey by C.P.A., 1965

b. Mostly Hunting and Fishing

TABLE 4-7

DESTINATION OF ON BOARD TRAFFIC (north of Ft. St. John)<sup>a</sup>.

|             |     |
|-------------|-----|
| Whitehorse  | 48% |
| Watson Lake | 23% |
| Fort Nelson | 11% |
| Mayo        | 10% |
| Dawson      | 8%  |

a. Source: On Board Survey by C.P.A., 1965



TABLE 4-6

ORIGINS AND DESTINATIONS:  
PASSENGER DISTRIBUTIONS, BY PERCENTAGE,  
FOR YUKON CITIES, FOR 1964, 1965, 1966.

| City            | Year | O/D | Columbia | Alberta | Elsewhere<br>in Yukon | Rest of<br>Canada | U.S.A. |
|-----------------|------|-----|----------|---------|-----------------------|-------------------|--------|
| DAWSON          | 1964 | O   | 33%      | 34%     | 30%                   | 3%                | -      |
|                 |      | D   | 32       | 38      | 28                    | 2                 | -      |
|                 | 1965 | O   | 22       | 32      | 41                    | 5                 | -      |
|                 |      | D   | 33       | 34      | 30                    | 3                 | -      |
|                 | 1966 | O   | 39       | 15      | 38                    | 7                 | 1%     |
|                 |      | D   | 42       | 11      | 42                    | 4                 | 1      |
| MAYO            | 1964 | O   | 45       | 25      | 27                    | 3                 | -      |
|                 |      | D   | 37       | 25      | 34                    | 4                 | -      |
|                 | 1965 | O   | 42       | 22      | 30                    | 6                 | *      |
|                 |      | D   | 40       | 31      | 26                    | 3                 | *      |
|                 | 1966 | O   | 40       | 16      | 36                    | 8                 | -      |
|                 |      | D   | 42       | 31      | 22                    | 5                 | -      |
| WATSON<br>LAKE  | 1964 | O   | 47       | 24      | 23                    | 6                 | -      |
|                 |      | D   | 48       | 25      | 19                    | 8                 | -      |
|                 | 1965 | O   | 41       | 27      | 27                    | 5                 | *      |
|                 |      | D   | 43       | 34      | 17                    | 6                 | 1      |
|                 | 1966 | O   | 44       | 22      | 23                    | 10                | 1      |
|                 |      | D   | 43       | 30      | 20                    | 6                 | 1      |
| WHITE-<br>HORSE | 1964 | O   | 50       | 29      | 13                    | 8                 | -      |
|                 |      | D   | 52       | 27      | 13                    | 8                 | -      |
|                 | 1965 | O   | 52       | 30      | 12                    | 6                 | *      |
|                 |      | D   | 51       | 28      | 15                    | 6                 | *      |
|                 | 1966 | O   | 52       | 28      | 12                    | 7                 | 1      |
|                 |      | D   | 51       | 28      | 14                    | 7                 | *      |

\* less than .5%

Source: D.B.S. origin and destination Statistics, converted into totals and then percentages.



APPENDIX 5REGULATIONS GOVERNING THE GRANTING, ASSIGNMENT OR TRANSFER  
OF PUBLIC SERVICE VEHICLE LICENCES

Issued pursuant to Commissioner's Order 1966-126.  
Dated September 12, 1966.

Application

1. (1) These regulations shall apply to any applicant for the granting, assignment or transfer of a P.S.V. Licence, unless
  - (a) in the case of an individual he is a bona fide resident of the Territory, or
  - (b) in the case of a corporation or aggregate employer he maintains a bona fide place of business in the Territory employing thereat at least one full-time employee.
 and who is currently the holder of a Territorial P.S.V. Licence for vehicles of similar category.
- (2) These regulations do not apply to an application for renewal of a currently expiring P.S.V. licence by a holder in good standing.

Form of Application

2. Every applicant shall make application to the Commissioner on the appropriate form of the Schedule appended hereto.
3. A notice of the application, in the appropriate form of the Schedule appended hereto, shall be published by the applicant in two issues, at least 2 (two) days apart, of a newspaper published in and circulated throughout the Yukon Territory and the applicant shall forthwith file with the Commissioner proof of publication.

(As amended by 1966-140)

Objection and Hearing

4. Any person may object to the granting, assignment or transfer of a Public Service Vehicle licence by filing a written objection and reasons therefor with the Commissioner and by causing a copy of the objection and reasons therefor to be served upon the applicant personally or by registered mail not more than five days, not including Saturday, Sunday or Statutory Holidays, after the last publication referred to in section 3.

(As amended by 1966-140)





5. Upon receipt of an objection, the Commissioner may fix a day at least seven days after the last day of the publication referred to in section 3 for hearing representations on behalf of the applicant and on behalf of the person or persons who have filed an objection pursuant to section 4.
6. Where an objection to an application has been made pursuant to section 4, the Commissioner may appoint a Board consisting of not more than 5 members and a chairman.
7.
  - (1) The board appointed pursuant to section 6 shall meet on the day fixed for the hearing to consider the application and the objections and shall decide whether a Public Service Vehicle licence shall be granted to the applicant and, if granted, shall stipulate the terms and conditions upon which the grant shall be made.
  - (2) The Board may adjourn from time to time and place to place and shall not be obliged to announce it's decision in the presence of the applicant or any other person.
  - (3) Upon reaching it's decision the chairman of the Board shall communicate full particulars of the Board's decision to the Commissioner.
  - (4) The Board's decision shall be based on a majority vote of the chairman and members thereof.

Through Freighter Licence

8. Notwithstanding anything contained in these regulations, an applicant who applies for a Public Service Vehicle licence for the purpose only of transporting goods through the Territory without loading or discharging any part of the goods inside the Territory, may be granted a Public Service Vehicle licence for that purpose.



S C H E D U L EFORM AAPPLICATION FOR PUBLIC SERVICE VEHICLE LICENCE

1. Name of Applicant:
2. Residence:
3. Number and type of motor vehicles for which application is being made:
4. Type of goods to be brought into the Territory:
5. Type of goods to be taken out of the Territory:
6. Particulars of experience in the business of freight or passenger transportation and length of time established in present business:
7. Will the proposed service be scheduled or unscheduled service?
8. Places in Territory where freight or passengers are to be discharged or picked up;
9. Details of insurance in respect of each vehicle for which a P.S.V. licence is applied:
10. Length of time it is proposed to make use of such P.S.V. licence:
11. Will application for renewal be made in a succeeding year?
12. Accompanying this application are four copies of the proposed freight or passenger tariff showing the rates to be charged, collected or enforced in connection with the proposed service.
13. Details of bonding arrangements for safe-keeping of consigned goods or C.O.D. monies.
14. Any material on which applicant relies to establish that there is insufficient similar service in the Yukon.



S C H E D U L E

FORM B

# NOTICE OF APPLICATION FOR PUBLIC SERVICE VEHICLE LICENCE

Notice is hereby given that an application for a Public Service Vehicle licence has been made to the Commissioner of the Yukon Territory. Any person objecting to the granting of such licence shall file such objections and reasons therefor in writing with the Commissioner not more than five days after the last publication of this notice and serve a copy of such objection and reasons therefor on the applicant personally or by registered mail.

Name of Applicant:

Residence of Applicant:

Number and types of vehicles for which  
licences are being applied for:

Purpose of Application:

The day of the hearing of the application shall be not less than seven days after the last publication of this notice.

This is the time of publication.





S C H E D U L EFORM CAPPLICATION FOR TRANSFER OR ASSIGNMENT OF PUBLIC  
SERVICE VEHICLE LICENCE

1. Name of Applicant:
2. Residence:
3. Name of existing P.S.V. Holder;
4. Number and type of motor vehicles for which application is made:
5. Type of goods to be brought into the Territory:
6. Type of goods to be taken out of the Territory:
7. Particulars of experience in the business of freight or passenger transportation and length of time established in present business:
8. Will the proposed service be scheduled or unscheduled service?
9. Places in Territory where freight or passengers are to be discharged or picked up:
10. Details of insurance in respect of each vehicle for which a P.S.V. licence is applied:
11. Length of time it is proposed to make use of such P.S.V. licence.
12. Will application for renewal be made in a succeeding year?
13. Accompanying this application are four copies of the proposed freight or passenger tariff showing the rates to be charged, collected or enforced in connection with the proposed service.



S C H E D U L E

FORM D

NOTICE OF APPLICATION FOR TRANSFER OR ASSIGNMENT  
OF PUBLIC SERVICE VEHICLE LICENCE

Notice is hereby given that an application for transfer of a Public Service Vehicle licence has been made to the Commissioner of the Yukon Territory. Any person objecting to the transfer of such licence shall file such objection and reasons therefor in writing with the Commissioner not more than five days after the last publication of this notice and serve a copy of such objection and reasons therefor on the applicant personally or by registered mail.

Name of Applicant:

Residence of Applicant:

Name of Existing P.S.V. Holder:

Number and types of vehicles for which  
licences are being applied for:

### Purpose of Application:

The day of the hearing of the application shall be not less than seven days after the last publication of this notice.

This is the time of publication.



## APPENDIX 6

## TABLE 6-1

CAPITAL EXPENDITURE ON ROAD, BRIDGES AND PUBLIC WORKS BY THE YUKON  
TERRITORIAL GOVERNMENT, 1962 - 1967

| Dollars                                  |           |           |         |           |           |         |
|--|-----------|-----------|---------|-----------|-----------|---------|
| Construction on<br>Major Roads           | 1967      | 1966      | 1965    | 1964      | 1963      | 1962    |
| Stewart Crossing/<br>Dawson Road         | 164,114   | 165,219   | -       | 52,606    | 124,805   | 238,462 |
| Dawson/Boundary<br>Road                  | -         | 22,713    | -       | 46,322    | 50,011    | 41,624  |
| Whitehorse/Keno<br>Road                  | 142,709   | 260,421   | 418,295 | 319,266   | 314,000   | 263,975 |
| Canol Road                               | 46,023    | -         | 67,182  | 14,471    | -         | 39,763  |
|  | 352,846   | 439,353   | 485,477 | 432,665   | 488,316   | 583,824 |
| <u>Other Roadworks</u>                   |           |           |         |           |           |         |
| Road and garage<br>equipment             | 406,455   | 425,508   | 240,137 | 381,251   | 232,526   | N.A.    |
| Other roads <sup>a</sup> .               | 220,753   | 313,508   | 103,919 | 276,023   | 149,960   | 110,304 |
| Total roads                              | 980,054   | 1,178,369 | 829,533 | 1,089,939 | 870,802   | 694,128 |
| Airstrips                                | 7,145     | 3,435     | 4,214   | -         | 1,340     | -       |
| Bridges                                  | 36,949    | -         | 42,754  | 23,606    | 27,966    | 2,691   |
| Office equipment                         | 1,855     | 1,331     | 1,071   | 6,191     | 3,404     | N.A.    |
| Other public works                       | 80,544    | 50,383    | 48,762  | 76,425    | 220,900   | 110,754 |
|  | 126,493   | 55,149    | 96,801  | 106,222   | 253,640   | 113,445 |
| Total roads, bridges<br>and public works | 1,105,772 | 1,233,518 | 926,334 | 1,196,161 | 1,124,442 | 807,573 |

Source: Government of the Yukon Territory Public Accounts,  
31st March 1963 - 31st March 1967.

a. Includes capital expenditure on secondary roads, Yukon Forestry Department roads, etc.



TABLE 6-2

CAPITAL EXPENDITURE ON ROADS AND BRIDGES 100% RECOVERABLE FROM THE  
FEDERAL GOVERNMENT UNDER THE ENGINEERING SERVICES AGREEMENT, 1963-1967

Dollars

|      |         |
|------|---------|
| 1967 | 391,274 |
| 1966 | 441,799 |
| 1965 | 504,583 |
| 1964 | 545,582 |
| 1963 | 492,652 |

TABLE 6-3

REIMBURSEMENT OF EXPENDITURE INCURRED BY THE YUKON TERRITORY,  
31st MARCH 1962 - 31st MARCH 1967\*

Dollars

| <u>As at<br/>31st March</u> | <u>100%<br/>Recoverable</u> | <u>Partly<br/>Recoverable</u> | <u>Non<br/>Recoverable</u> | <u>Total</u> |
|-----------------------------|-----------------------------|-------------------------------|----------------------------|--------------|
| 1967                        | 112,733                     | 1,231,707                     | 581,895                    | 1,926,335    |
| 1966                        | 85,516                      | 887,186                       | 479,516                    | 1,452,218    |
| 1965                        | 59,483                      | 761,281                       | 535,811                    | 1,356,575    |
| 1964                        | 11,409                      | 605,320                       | 391,830                    | 1,008,559    |
| 1963                        | 17,735                      | 545,885                       | 397,310                    | 960,930      |
| 1962                        | N.A.                        | 575,106                       | 319,044                    | 894,150      |

Source: Government of the Yukon Territory Public Accounts,  
31st March 1962 - 31st March 1967.

\* Recoveries in the main were received under the Federal-Territorial Engineering Services Agreement whereby the Federal Government accepts financial responsibility wholly or in part for certain work carried out by the Territorial Government.





TABLE 6-4

OPERATIONS AND MAINTENANCE EXPENDITURE ON ROADS, BRIDGES AND PUBLIC WORKS  
BY THE YUKON TERRITORIAL GOVERNMENT, 31st March, 1962 - 31st March, 1967

|  | Dollars     |             |             |             |             |             |
|--|-------------|-------------|-------------|-------------|-------------|-------------|
| <u>Major Road Works</u>                  | <u>1967</u> | <u>1966</u> | <u>1965</u> | <u>1964</u> | <u>1963</u> | <u>1962</u> |
| Stewart Crossing/<br>Dawson Road         | 219,169     | 158,752     | 145,536     | 141,134     | 143,963     | 144,523     |
| Dawson - Boundary<br>Road                | 142,910     | 119,332     | 59,017      | 57,645      | 67,093      | 37,838      |
| Whitehorse/Keno<br>Highway               | 474,205     | 361,307     | 341,871     | 281,537     | 251,459     | 337,304     |
| Canol Road                               | 156,816     | 125,876     | 87,529      | 66,413      | 68,001      | 89,447      |
|  | 943,100     | 765,267     | 633,953     | 546,729     | 530,516     | 609,112     |
| Other roadworks                          | 492,198     | 410,580     | 369,984     | 188,203     | 135,805     | 92,461      |
| Total roadworks                          | 1,485,298   | 1,175,847   | 993,937     | 734,932     | 666,321     | 701,573     |
| Airstrips                                | 8,657       | 10,431      | 8,186       | 6,306       | 7,109       | 5,483       |
| Ferries                                  | 76,148      | 39,020      | 59,725      | 57,645      | 67,093      | 37,838      |
| Administrative                           | 136,799     | 105,130     | 104,379     | 98,144      | 99,005      | 89,649      |
| Other public works                       | 219,433     | 121,790     | 190,348     | 111,532     | 121,402     | 59,607      |
| Total roads, bridges<br>and public works | 1,926,335   | 1,452,218   | 1,356,575   | 1,008,559   | 960,930     | 894,150     |

Source: Government of the Yukon Territory Public Accounts,  
31st March 1962 - 31st March 1967.



TABLE 6-5

## FEDERAL EXPENDITURE ON ROADS AND BRIDGES IN NORTHERN CANADA, 1962-1967

Dollars

| <u>As at 31st March</u> | <u>Northwest Highway System<sup>a</sup></u> | <u>Development Roads<sup>b</sup></u> |                              | <u>Total Expenditure</u> |
|-------------------------|---|--------------------------------------|------------------------------|--------------------------|
|                         |   | <u>Yukon Territory</u>               | <u>Northwest Territories</u> |                          |
| 1962                    | N.A.  | 4,796,471                            | 2,659,602                    |                          |
| 1963                    | N.A.  | 3,940,271                            | 1,850,635                    |                          |
| 1964                    | N.A.  | 1,765,084                            | 1,936,810                    |                          |
| 1965                    | 9,400,000                                   | 1,638,463                            | 1,745,053                    | 12,783,516               |
| 1966                    | 5,500,000                                   | 2,682,032                            | 1,560,434                    | 9,742,466                |
| 1967                    | 6,149,500                                   | 3,050,435                            | 4,003,864                    | 13,203,799               |

Source: Department of Public Works Annual Reports, 1965-1967. Public Accounts of Canada, Department of Indian Affairs and Northern Development, 1962-1967.

a. The Northwest Highway System comprises the 1,220 miles of the Alaska Highway, the 117 miles of the Haines cut-off road and a number of air-field access roads. Responsibility for maintaining this system was transferred from the Department of National Defence to the Department of Public Works on April 1, 1964.

b. The Department of Indian Affairs and Northern Development is responsible for construction (through the Department of Public Works) of development roads.

TABLE 6-6

FEDERAL EXPENDITURE ON AIRPORT RUNWAYS AND ASSOCIATED FACILITIES<sup>c</sup>

1962 - 1967

Dollars

| <u>\$ '000s</u>                                  | <u>1967</u> | <u>1966</u> | <u>1965</u> | <u>1964</u> | <u>1963</u> | <u>1962</u> |
|--|-------------|-------------|-------------|-------------|-------------|-------------|
| Northern British Columbia                        | 221.8       | 811.9       | 581.3       | 139.6       | 75.8        | 352.9       |
| Yukon Territory                                  | N.A.        | 102.6       | 572.7       | 412.6       | 16.3        | 84.9        |
| Northwest Territories<br>(District of MacKenzie) | 155.8       | 9.9         | 8.6         | 433.2       | 376.8       | 1,886.9     |
| TOTAL  | 377.6       | 924.4       | 1,162.6     | 985.4       | 468.9       | 2,324.7     |

Source: Public Accounts of Canada, Department of Transport, 1962 - 1967.

c. Includes runways, taxiways, terminal buildings and other facilities.



TABLE 6-7

FEDERAL EXPENDITURE ON DEVELOPMENT ROADS AND BRIDGES IN THE  
YUKON TERRITORY, 1962 - 1967

Dollars

|                                    | <u>1962</u> | <u>1963</u> | <u>1964</u> | <u>1965</u> | <u>1966</u> | <u>1967</u> |
|------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Watson Lake/Ross<br>River Road     | 1,417,383   | 1,554,650   | 877,353     | 1,070,767   | 932,277     | 1,064,524   |
| Whitehorse/Keno<br>Road            | 402,148     | 314,489     | 319,266     | 435,166     | 270,432     | -           |
| Stewart Crossing/<br>Dawson Road   | 880,682     | 136,756     | 55,390      | 8,000       | 169,165     | -           |
| Canol Road                         | 41,000      | 1,419       | 15,100      | 69,654      | -           | -           |
| Flat Creek/<br>Eagle Plain<br>Road | 977,454     | 288,781     | 33,977      | -           | -           | -           |
| Nahanni Range<br>Road              | 730,615     | 1,086,023   | 193,787     | 35,330      | -           | -           |
| Ross River<br>Carmacks<br>Road     | -           | -           | 99,928      | -           | 481,830     | 1,447,034   |
| Clinton Creek<br>Road              | -           | -           | -           | -           | 663,190     | -           |
| Dempster<br>Highway                | -           | -           | -           | -           | 18,500      | -           |
| Boundary Road                      | -           | -           | 46,355      | -           | 40,000      | -           |
| Other                              | 347,189     | 558,153     | 123,928     | 19,546      | 106,638     | 922,974     |
| Total                              | 4,796,471   | 3,940,271   | 1,765,084   | 1,638,463   | 2,682,032   | 3,050,435   |

Source: Public Accounts of Canada, Department of Indian Affairs and Northern Development, 1962-1967.





TABLE 6-8  
FEDERAL EXPENDITURE ON DEVELOPMENT ROADS AND BRIDGES IN THE  
NORTHWEST TERRITORIES, 1962-1967

|                                      | Dollars     |             |             |             |             |             |
|--------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                                      | <u>1962</u> | <u>1963</u> | <u>1964</u> | <u>1965</u> | <u>1966</u> | <u>1967</u> |
| Mackenzie Highway                    | 1,506,928   | 1,180,260   | 522,723     | -           | -           | 942,306     |
| Yellowknife/McKay Lake Road          | 577,203     | 94,226      | 49,944      | -           | -           | -           |
| Hay River/Pine Point/Fort Smith Road | -           | 92,040      | 997,768     | -           | -           | -           |
| Hay River/Pine Point Road            | -           | -           | -           | 1,422,658   | 612,791     | -           |
| Pine Point/Fort Smith Road           | -           | -           | -           | -           | 830,000     | 2,205,353   |
| Fort Smith/Pine Lake Road            | -           | -           | -           | -           | -           | -           |
| Other                                | 575,471     | 484,109     | 361,375     | 322,395     | 117,643     | 757,339     |
| TOTAL                                | 2,659,602   | 1,850,635   | 1,936,810   | 1,745,053   | 1,560,434   | 4,003,864   |

Source: Public Accounts of Canada, Department of Indian Affairs and Northern Development, 1962-1967.



## APPENDIX 7

### THE ROLE OF HELICOPTERS IN THE YUKON AND NORTHWEST CANADA

Within the last decade helicopters have assumed a pre-eminent position in programs of mineral exploration and development in Northwest Canada. Because of their flexibility in regard to terrain the rate of exploration has been speeded up with a more intense utilization of skilled personnel. The main users of helicopter services are mining and oil companies, government agencies such as Forest and Geological services, mapping and survey branches.

#### Mineral Exploration

Oil companies working in the McKenzie Basin have been restricted in certain areas to winter exploration only because of terrain. The new turbine powered helicopters can lift up to 4,000 lbs., (Bell 204B) and oil companies are able to move drilling equipment into hitherto inaccessible areas during the summer season.

On the other hand piston powered helicopters are very inefficient at low temperatures, and the advent of the turbine motor since 1963 enables machines to be used the year round. Now both mining and oil companies can work the year round in many areas where temperature formerly was a limiting factor.

#### Operating Costs in the North

Operating costs of helicopters are higher in the north, of course, because of distance from bases of supply and lack of road transportation. For most areas fuel must be flown to the helicopter by fixed wing aircraft, which pre-supposes a lake, river or a landing strip. Obviously a helicopter must be based as closely as possible to the locations of the job otherwise costly flying time builds up and pay loads must be reduced in favour of fuel.



Because of higher operating costs in the North, helicopter companies not based locally usually require a minimum three months charter plus some acceptance of indirect costs by the charterer. Indirect costs include the transportation of fuel and spare parts in case of breakdown in the field.

Short term charter rates run from \$105.00 per hour for a Bell 47G2 to \$450.00 per hour for a Bell 204B, while the operating costs range from \$60.00 per hour to \$275.00 per hour. The following table indicates the charter rates of Okanagan Helicopters Ltd., the largest company in Canada, for various types of machines in their fleet:

| <u>Machine</u>                | <u>Charter Period</u>   |  |               |
|-------------------------------|---|--|---------------|
|                               | 1 - 29 Days<br>Minimum 3 hours<br>per day - rates<br>per hour | 4 - 5 Months<br>Minimum per<br>summer months | Rate per hour |
| Bell 47G2                     | \$105   | \$ 7,840                                     | \$ 98         |
| Hiller 12E, 12EL,<br>Bell G3B | \$140   | \$11,500                                     | \$130         |
| Hiller SL-4                   | \$154   | \$12,710                                     | \$149         |
| Sikorsky S-58                 | \$195   | \$13,650                                     | \$195         |
| Bell 204B                     | \$450   | \$42,125                                     | \$400         |

Source: Okanagan Helicopters Ltd., Vancouver, B.C.

Note: A study of the demand for helicopter service in British Columbia and the Yukon Territory made by one company indicates that 35% of their machine time was used to move passengers, 50% to move cargo and 15% for air-borne surveys. The company ascertained that large mining companies use machines approximately 500 hours per year, while small mining companies use about 40 hours per year.\*

\* Northern Helicopters Ltd., Vancouver, B.C. (1966).



APPENDIX 8SUPPLEMENT TO THE TRANSPORTATION REPORTCAPITAL INVESTMENT AND EMPLOYMENT IN TRANSPORTATION  
IN THE YUKON TERRITORY

Capital expenditures on transportation may be divided between the private and public sectors. In the public sector the Federal Government via the Departments of Transport, Public Works, Northern Affairs and Development construct and maintain the North-West Highway System which includes the Alaska Highway and the Haines Cut-off. Department of Transport operated airports are located at Whitehorse, Watson Lake, Teslin, Dawson City.

A substantial road development program was authorized by the Department of Northern Affairs and Natural Resources\* for Northern Canada including the Yukon Territory.

There are four basic components to the Northern Roads program.

1. Communication and Network Roads are permanent highways linking population centres within the territory, and linking territories with the provinces. The Federal Government pays for construction and 85% of the maintenance cost.
2. Initial Access Roads are low standard winter or year round roads to provide established resource exploration or development project with access to a network road. The Federal Government will pay 50% of construction cost but the road must be maintained by its primary user.
3. Permanent Access Roads are to connect a resource development about to produce, to a permanent road. Federal Government pays up to two thirds of the

---

\* See: Department of Northern Affairs and Natural Resources Pamphlet  
"What the new Northern Road Network means . . ."





cost but not to exceed 15% of capital invested by a company prior to commercial production.

4. Area Development Roads are to lead into resource potential areas and planned to fit in with and extend the overall road network plan. The Federal Government pays the cost of construction and shares maintenance with the territorial government.

5. Roads connecting public airports to nearest network or local road will be constructed by the Federal Government who will also pay 85% of the maintenance costs.

It can be seen that a substantial investment has been made in the Yukon Territory by the Federal Government on roads and airports. The territorial government assumes limited responsibility for road construction and will continue to do so until its tax base broadens.

#### Private Investment

Private investment in Yukon transportation is, of course, dominated by the White Pass and Yukon Corporation and its subsidiaries, which had net assets after depreciation in 1966 of \$18,500,000. The assets include the Vancouver terminal operation, the marine, rail and pipeline operation, the Highway Division out of Whitehorse, and Loiselle Transport Ltd.

The net capital investment in the Highway Division is calculated at \$2,000,000, including 27 tractors and 53 trailers. Loiselle Transport operates 7 tractors and 10 trailers on the Alaska Highway route at an estimated capital cost of \$350,000. Canadian Freightways Ltd., the Alaska Highway Express, Gordies, Tamec and Carnegie have an estimated capital investment in equipment



and terminal facilities in the Yukon of \$500,000.

The remaining major private carrier in the Yukon Territory is United Keno Hill Transport Division, which operates 50 tractors and 54 trailers with the main terminal at Whitehorse. The total capital investment is estimated to be in excess of \$2,000,000.

#### Employment and Payroll

White Pass and Yukon Corporation employs approximately 380 personnel of which 75 work in Vancouver, 130 in Alaska and 175 in the Yukon Territory. Of the 175 employees in the Yukon Territory, approximately 70 operate the Highway Division. The total payroll in the Yukon Territory in 1967 was \$1,468,000.

#### Rail: Capital Investment and Employment, 1969-75

It is estimated that by 1970 the total volume of traffic on the White Pass and Yukon Railway will be in excess of 600,000 tons per annum.\* This total will include 255,000 tons of containerable commodities and petroleum products and 380,000 tons of lead-zinc concentrates from the Anvil mine. By 1975 it is estimated that the annual tonnage will have increased to 726,000 tons. The Travacon Report has pointed out that an upgrading of the present railway track will be required to handle the 300 per cent increase in business. The estimated cost is approximately \$3,000,000. In addition 80 ore cars of 30 tons capacity and three diesel locomotives will be needed to haul the Anvil concentrates. It is further estimated that 36 permanent employees and 23 temporary summer employees will be required at an annual cost of approximately \$470,000 to maintain the upgraded track.+

---

\* Travacon Report, p. 6.30.

+ Ibid., p.6.24.



Road

It is estimated that 38 tractor trailer units will be required to haul the Anvil concentrates to railhead at a 1966 price of \$36,000 per unit, or \$1,370,000. To this may be added \$50,000 for maintenance facilities. The employment created by the truck haul should be in the order of 60 or 70 men.

Additional facilities will be required by all trucking companies, particularly the Highway Division of the White Pass and Yukon Railway, due to a predicted 20% increase in northbound cargo between 1968 and 1973. It is quite possible that northbound traffic will increase at a more rapid rate, however, as smaller mines, such as Mount Nansen and Arctic, come into production. Thus an estimate of new capital investment in the order of \$2,000,000 on trucking equipment in the next five years appears to be reasonable.





APPENDIX 9  
HOVERCRAFT IN THE NORTH

The hovercraft's demonstrated ability to travel over many types of surface conditions could mean that the vehicle has considerable potential as a transport medium in Northern Canada.

Trials undertaken in and near the Mackenzie River Delta between April 22 and May 30, 1966, tested an SRN5 over a variety of surfaces, including fast ice, pressure ridges, first-year sea ice and overland, under late winter and spring conditions. Several extended sorties were made including a 500 mile trip from Tuktoyaktuk to Norman Wells, during which the hovercraft travelled through all phases of break-up on the Mackenzie River.

A commercial SRN5 operating under the conditions of these trials would be able to carry up to 5,000 lbs. of freight, something between the capacity of an Otter and a Dakota (C47).

The Report on the trials, put out by the Defence Research Board of the Department of National Defence, stated that the SRN5 could negotiate all surface conditions encountered and that, with the exception of the severest river break-up conditions, few problems were experienced.

No major difficulties were experienced in the actual transportation of the hovercraft to Tuktoyaktuk and Norman Wells, and the report states that "it should be possible, with a certain amount of local improvisation to load or unload an SRN5 from C130 aircraft virtually anywhere"

The maintenance and serviceability of the vehicle apparently presented little difficulty, the only exception being the flexible skirts which were not suitable for prolonged operation in low temperatures.



Apart from the general logistic and supply problems common to every operation in arctic regions, few difficulties were experienced, as only a small quantity of spare parts were needed, and support transportation, including a helicopter and snowmobile, were convenient but not essential.

Additional trials out of Churchill, Manitoba, to further test hovercraft under arctic conditions began in January, 1968, under a contract awarded by the Department of Transport to Hovercraft Canada Ltd., this time using a larger SRN6 model.

Although the 1966 trials have demonstrated that the hovercraft can be successfully operated in a wide range of arctic conditions, doubts exist as to whether the vehicle in its present state of development would be a commercially viable proposition in Northern Canada, or whether its advantages over existing transportation methods would be worth the financial outlay involved.

For purely supply purposes it is probably more economical to bulk supply isolated areas by sea and river during the summer months, and use aircraft during the winter for special loads, than to use hovercraft.

It has been suggested, however, that a hovercraft's most important applications in Northern Canada would be in regions where the cost of moving things is secondary to the need to move them, and in exploration and survey work. In restrictive Arctic conditions, hovercraft would probably be able to haul heavier materials and supplies, e.g. oil drilling rigs, more conveniently and economically than helicopters.

Possible future developments in this field could be the operation of a hovercraft service in the Northwest Territories. Pacific Hovercraft Ltd.



have applied to the Air Committee of the Canadian Transport Commission for a licence to operate a hovercraft between Hay River and Tuktoyaktuk via the Mackenzie River on a fortnightly schedule. However, no decision is likely to be made for some time.



# FOOTNOTES

1. Farley Mowat, Canada North, (Toronto: McClelland & Stewart Ltd., 1967), p. 111.
2. David P. Morgan, "Trains Go To Alaska," Trains, (February 1963), p.19.
3. Stanford Research Institute, Improvement Program for the Alaska Highway, (Ottawa: Department of Northern Affairs and National Resources, 1966), p.iv-56.
4. C.J. Brown, "Yukon Mineral Resources and Transportation," paper presented to the Alaska Centennial Conference, Fairbanks, Alaska, 1967, p.5.
5. White Pass & Yukon Railway, Tariff C.F.O. 800, C.T.C. (F) #87.
6. Travacon Research Ltd., Economic Implications of Developing Selected Alternative Highway Routes to Tidewater from the Yukon Territory, Report to the Department of Indian Affairs and Northern Development, 1967, p.314.
7. M.D. Dawson, "A Technique of Air Cargo Market Research," Papers, Sixth--- Annual Meeting, Transportation Research Forum, (Oxford, Richard B. Cross Co., 1965), p.289.
8. Travacon Research Ltd., op.cit., p.6-9.
9. C.C. Watson, "Railway's Big Role in Total P.D. Concept," Canadian Transportation April 1967, p.34.
10. Mr. B. Hogan, personal interview, February 1968.
11. "Northern Resource Roads" and the "Northern Road Network Program," publications of the Department of Indian Affairs and Northern Development.
12. Department of Transport, and Department of Indian Affairs and Northern Development airport rating.
13. Yukon Territory files.
14. Letter, G.E. McDowell, Regional Director Air Services, Department of Transport, Edmonton, 19th March 1968.
15. Roland N. McKean, Public Spending, (New York: McGraw Hill, 1968), p.161.
16. U.S. Department of State, Report of the Commission to Study the Proposed Highway to Alaska, Conference Series No. 14, 1933.
17. Canada, British Columbia-Yukon-Alaska Highway Commission, Report on the Proposed Highway through British Columbia and the Yukon Territory to Alaska, (Ottawa: King's Printer, 1942).
18. The North Pacific Planning Project, Canada's New Northwest (Ottawa: King's Printer, 1948).





19. U.S. Congress, Alaska International Rail and Highway Commission, Final Report, Transport Requirements for the Growth of Northwest North America, 87th Congress, 1st Session, House Doc. 176, Vols. I, II & III.

20. "Proposed P.N.R. route was mapped by air," Railway Age, Vol. CIL, No. 24, (1960), p.45.

21. Primary Resources Committee, Vancouver Board of Trade, Northern British Columbia Resource Development - 1965, Vancouver, 1965.

22. W. Owen, Strategy for Mobility, (Washington D.C.: Brookings Institution, 1964), p.54.

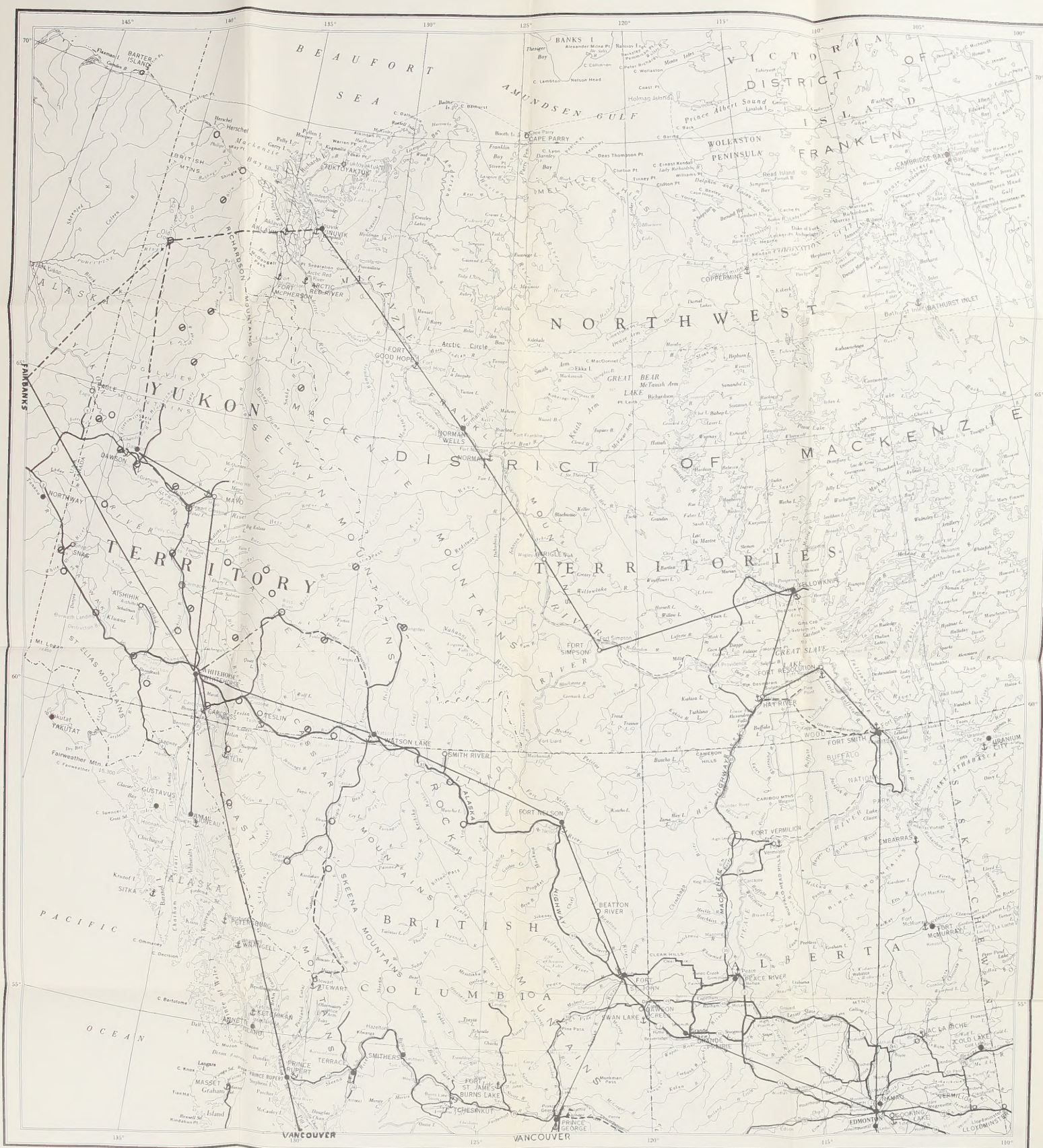
23. Op. Cit., p.197.











MCR 35

Produced by the Survey and Mapping Branch, Ottawa, 1964.

# TRANSPORTATION FACILITIES - 1964 NORTHWESTERN CANADA

- REFERENCE
- RAILWAY
  - MOTOR ROAD
  - WINTER ROAD
  - HIWAY NUMBER
  - FERRY
  - SHIPPING SERVICE
  - AIRFIELD
  - SEAPLANE ANCHORAGE
  - SCHEDULED AIR SERVICE
  - NON-SCHEDULED AIR SERVICE
  - UNLISTED AIRSTRIP

Scale 1 inch to 50 miles  
Miles 25 0 25 50 75 100 125 150 Miles

AIR DISTANCES BETWEEN MAIN CENTRES (in statute miles)

|                                  |     |                                   |     |
|----------------------------------|-----|-----------------------------------|-----|
| Edmonton (Int'l) - Fort McMurray | 249 | Edmonton (Int'l) - Grande Prairie | 250 |
| Fort McMurray - Fort Smith       | 234 | Grande Prairie - Fort St. John    | 103 |
| Fort Smith - Hay River           | 142 | Fort St. John - Fort Resolution   | 192 |
| Hay River - Fort Simpson         | 142 | Fort Resolution - Watson Lake     | 236 |
| Fort Simpson - Yellowknife       | 122 | Watson Lake - Whitehorse          | 217 |
| Yellowknife - Norman Wells       | 175 | Whitehorse - Dawson City          | 264 |
| Norman Wells - Inuvik            | 277 | Grande Prairie - Prince George    | 176 |
| Fort Smith - Fort Resolution     | 99  | Prince George - Smithers          | 123 |
| Fort Resolution - Yellowknife    | 92  | Smithers - Terrace                | 81  |
| Yellowknife - Cambridge Bay      | 528 | Terrace - Prince Rupert           | 76  |

Copy may be obtained from the Map Distribution Office,  
Department of Mines and Technical Surveys, Ottawa



